Approved for Use With MEGATRAVELLER™ and 2300™

the TRAVELLERS' Digest

U.S. $3.95

Number 11

Traveller:
The Next Generation
***The* MEGATRAVELLER**
Rules in Depth

Missing in Transit
FEATURE ADVENTURE

Traveller Arsenal
Illustrated Hardware

System Survey
A New Feature by John Theisen

For 2300 —
An Overview of the American Arm

Exploration: American Style

The quarterly adventure magazine devoted to GDW's science-fiction role playing games

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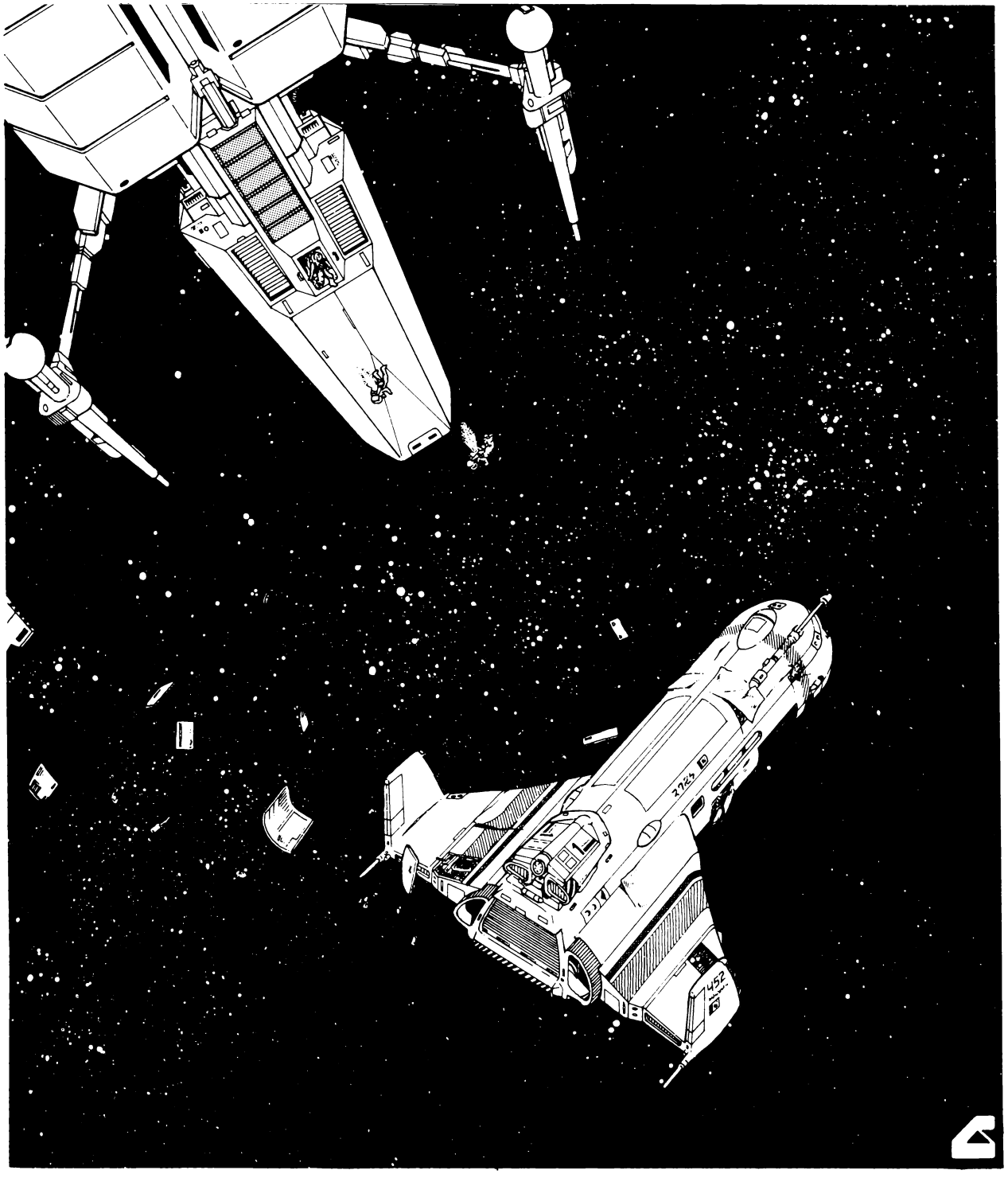
Missing In Transit
FEATURE ADVENTURE



"Nothing human is alien to me. Thus spoke a Terran philosopher more than 5,000 years ago, little imagining the incredible diversity among our species that would be discovered millenia later. I for one can't say that everything I see is expected, but there are times even in the most unusual circumstances when I feel a certain kinship that I cannot rationally explain."

—Akidda Laagiir, from "A Search for a Wife" in the *Travellers' Digest*, 1106

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Editors' Digest

FROM THE DESKS OF GARY L. THOMAS AND JOE D. FUGATE SR.

Where have you guys been, anyway? What's taken so long? Aren't you a little late? Well, yes and no. This issue of your favorite magazine is a little behind schedule, but not as much as you think, and we believe we have some good excuses.

We have, as of this issue, revised our publishing schedule. We'll still be appearing quarterly, but new magazines will arrive in January, April, July, and October, rather than the prior months under our old schedule. We did this for two reasons. First, our accountant was tearing out her hair over when to apply costs and revenues. Second, it's just plain easier to keep track of a magazine that comes out in the first month of each quarter rather than the last month. It's easier for our distributors and retailers, too.

So that explains one month of the delay. What about the rest? We're glad you asked: we've been busy with some other VIPs (Very Important Projects).

By now, your local gaming store should have the complete boxed edition of **MegaTraveller**, the new, official, 10-year rules update from GDW. As you probably know, we were in the thick of that project, and when push came to shove, we worked on it in preference to our own books in order to meet the Christmas deadline. If you've seen the three new volumes, we hope you were impressed enough to cut us a little slack. Meanwhile, we promise not to spend time updating the **Traveller** rules for at least another 10 years.

Also in your stores by the time you read this is a publication many of you have been anticipating for years. The first issue of *Travellers' Digest* had an original print run of 300 copies—if you have one, it's a real collector's item. But what if you don't have one? What if you didn't join up with us until the second issue? Or the third? Or...

Your problems are now solved. *The Early Adventures* squeezes most of the material from our first four issues into one big 48-page book. One thing that made this possible was the fact that the early adventures were still the smaller (half-size) format. Other cuts saved more space. In the reprint, we didn't have to repeat the player character descriptions four times. Our popular three-part series on robot designs was incorporated into *Book 8: Robots*, so it did not need reprinted. The developmental articles on the Universal Task Profile system were also omitted, since they now appear in the **MegaTraveller** rules.

What did we keep, then? All four adventures appear in their entirety, along with their world and local maps, NPC descriptions and illustrations, subsector maps and data, official library data for each sector visited, some "Tech Briefs" columns, and two sets of starship plans (complete with updated **MegaTraveller** craft profiles). All in all, a real bargain for only $7.00.

So, with all this productivity spilling out of our offices, we ended up a little late with this issue. Adventure 12 should be close to back on track. Usually, we have about a month in between issues—a chance for us to relax our brains a little and think up something new. This time, we have less than a week and it's back to the grindstone.

Things to Watch For Department: So you've devoured **MegaTraveller**, you picked up a copy of *The Early Adventures*, and your appetite is still not whetted. Have no fear! Exciting things are coming soon from DGP. Our talented staff of writers and artists is at this very moment busy at work on *101 Vehicles*, a compendium of large and small craft designs, each one illustrated (some in color) and fully described. This product should be at your dealer's store in the second quarter of this year.

Following just a month or two behind *101 Vehicles* is our *Starship Operator's Manual*, slated for an ORIGINS release date (August). We'll give you more details in a future issue.

Speaking of future issues, we have plenty in store for you soon. Adventure 12 (April) takes the characters into the Old Expanses, and in Adventure 13 (July) we reach Terra. *Lots* of surprises are promised. We don't want to give everything away now, but be prepared for our biggest issue ever (and we've had some pretty big ones!).

This issue is no slouch, either. The historical **Traveller** adventure introduces our intrepid quartet to the Geonee, a minor human race who don't consider themselves all that minor. Are the Ancients alive and well and living in Massilia Sector?

Several new features also debut this issue. "System Survey" takes you to Far Trinity, giving all the *Grand Survey* and *Grand Census* details you need to use this interesting world in an adventure. "**Traveller** Arsenal" shows the latest and greatest in high-tech weaponry. (Haven't you always wondered just what a Gauss rifle looks like?) "Medical Digest" describes the progress of medicine from tech levels 9 to 12, opening up a realm of new topics to be lovingly detailed in future columns.

Also debuting in this issue is a new name on our masthead. Rob Caswell, a talented illustrator and the editor of GDW's recent *Colonial Atlas*, has joined our staff as a contributing editor. Welcome aboard, Rob!

Afraid we're running out of room here, so we'll leave this issue in your able hands. Hope it was worth the wait!•

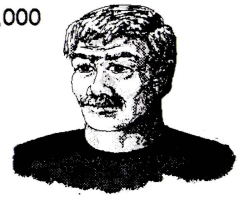
THE CHARACTERS

These adventures are intended for the characters listed below. Even though the characters listed are all male, feel free to change any or all of the genders as desired. The character data is listed using the **MegaTraveller** format.

Akidda Laagiir, Journalist

858AA6 Age 45 6 terms Cr 21,000
Interview-5, Streetwise-3, Grav Vehicle-1, Wheeled Vehicle-1, Admin-1, Brawling-1, Computer-0
Holocrystal Recorder
Starport A, Large, Dense Atm, Wet, High Pop, Mod Law, High Stellar
Born: 319-1059

Dur Telemon, Ex-Scout



B7A856 Age 37 3 terms Cr10,000
Auto Pistol-3, Survival-2, Pilot-1, Grav Vehicle-1, Engineer-1, Gambling-1, Brawling-1, Computer-1
Auto Pistol
Starport A, Large, Dense Atm, Wet, High Pop, Mod Law, High Stellar
Born: 038-1068

Dr. Theodor Krenstein, Scientist

495FC9 Age 61 10 terms Cr 300,000
Robotics-5, Leader-3, Electronics-2, JOT-2, Laser Rifle-1, Grav Vehicle-1, Medical-1, Mechanical-1
Hand Computer (TL15), Electronic Tool Kit, Robot AB-101
Starport A, Small, Vacuum Atm, Wet, High Pop, Mod Law, High Stellar
Born: 173-1043

Aybee Wan Owen, Valet

Apparent Stats:
8D9C78 Age 19 0 terms Cr 0
Medic-1, Linguistics-1, Grav Vehicle-1, Laser Welder-1
Starport A, Small, Vacuum Atm, Wet, High Pop, Mod Law, High Stellar
Born: 049-1081
Actual Robot Profile:
AB-101, Pseudobiological Robot
Constructed in 1091 by Dr. Theodor Krenstein
561x2-A2-PM327-FDC7(J) Cr11,970,600 319kg
Fuel=78.1 Duration=21.7 TL=15
7/17 (Jack)
Head (10%), 2 Lt arms
2 Eyes (+1 light intens), 2 ears, voder, touch sensors
Pwr int, brain int, TL 15 holo recorder, Lt laser welder
Medical-1, Linguistics-1, Grav Vehicle-1, Valet-1, Laser Welder-1, Rescue-1, Emotion Simulation

PLAYING THE CHARACTERS

Some of an adventure's most memorable moments are those that occur as the players play out their character's roles in a believable manner. To aid in this, we provide the following background details and role-playing pointers for the player characters.

AKIDDA LAAGIIR

Position: Current recipient of the *Travellers' Digest* Touring Award.

Akidda Laagiir started at age 18 as a copy boy with the *Mora World Review*; his friendly face and ability to gain the trust of others contributed to his steady career progress.

Living on Mora, with its charismatic dictator, the Duchess Delphine the Matriarch, is sometimes a trying experience for any journalist, which may explain his occasionally iconoclastic actions. He is slightly prejudiced against "the system", preferring fresh ideas and fresh ways of doing things. This boldness (especially in interview situations) has also contributed favorably to his career.

His admin skill was learned while moving up the ranks, but it is a skill that he would just as soon not need: he much prefers cutting through to the heart of a situation. While he is sensitive to the needs of others, he has a well developed self-preservation instinct that allows him to quickly adapt to a strange locale or culture—a skill that has saved his neck on more than one occasion.

Like most writers, he is consumed with curiosity, and when the *Travellers' Digest* journalism contest was held again in 1098, he was among the first to apply. His piece was entitled 'The Imperial Frontier: The Next Millenium.' In it he discussed the spinward frontier sectors of Deneb, Spinward Marches, Trojan Reach, and Reft and their role in shaping the growth of the Imperium in the next 1,000 years. On 258-1099, he received the announcement that he had won the coveted Travellers' Digest Touring Award.

Akidda has been travelling and submitting articles of his travels for over four years.

Role-Playing Notes: Akidda's strong interview skill indicates he has a real nose for a good story: to play him otherwise would be untrue to his character. His natural curiosity makes him likely to pursue "trouble", rather than run from it.

The counter-balance to Akidda's tendency to seek out such trouble is his streetwise skill, which enables him to lessen the harmful results of an otherwise awkward situation. His streetwise skill may enable him to "stumble" onto a valuable source of information the others would overlook.

Keeping this in mind, the referee should use the NPCs encountered by Akidda as those with the most valuable information to the group, as a result of Akidda's abilities. Akidda's phenomenal Interview-5 skill gives him tremendous insight when dealing with people.

DUR TELEMON

Position: Ex-Scout on reserve status.

Dur Telemon was *born* into the Scout service. His father was in the Scout service while Dur was growing up, and both of his grandfathers had served in the Scouts in their younger days. Dur enjoyed nothing more as a boy than to sit and listen to their tales of adventure.

The Fourth Frontier War broke out when Dur was a teenager—his father's service in the war was a source of pride for the entire family and deepened Dur's love for the scouts.

Dur's individualistic nature meshed well with his duties in the Exploration Office of the Scout Service. In his first

term, a 'routine' mapping expedition on Pannet/Rhylanor suddenly turned into a hostage rescue operation, and it was then that Dur happened to save Dr. Krenstein's life. Neither of them is overly emotional about it, but it was that initial chance encounter that grew into a respect and friendship between the two men over the years.

Dur's second and third terms were spent in District 268 and the Five Sisters subsectors doing various planetary surface and orbital surveys. During these surveys, Dur learned much about staying alive and living off the land in unusual environments. Halfway through his fourth term, he was transferred from his field post in the Exploration Branch to a bureaucratic position in Fleet Support.

Dur has resigned from the Scouts and has been travelling with his uncle, Akidda Laagiir.

Role-Playing Notes: Dur is the brash adventurer of the group and as such he is the least likely to fear physical confrontations or physical discomfort. He is also the most likely of the group to act without giving due consideration to the consequences. He has genuine concern for others and is the most likely to risk his life to save someone.

DR. THEODOR KRENSTEIN

Position: Graz Redniz Chair of Computational Robotics at Rhylanor Institute of Technology—on sabbatical leave.

Dr. Theodor Krenstein is a gifted, multi-talented scientist, with interests from anthropology and archaeology to xenology and zoology, including most of the 'ologies' in between.

Born on the planet Rhylanor, he entered the Rhylanor Institute of Technology at the age of eighteen, eventually receiving advanced degrees in computer science and robotics. He went on to serve three terms as Dean of the School of Robotic Science at RIT, after which he was appointed to the Graz Redniz Chair of Computational Robotics, a prestigious and coveted position. He is the author of 12 holocrystal publications and over 100 articles in technical and scientific journals, in addition to holding more than 250 Imperial military patents for his inventions and robotics work. Despite his academic success, he has become bored with what he has been doing, and realizing his age, he has taken an extended sabbatical from teaching in order to make forays through the Deneb Sector.

Among his many pursuits, Dr. Krenstein has aided the Scouts in developing robots for planetary surface surveys. During a test in 1090 on Pannet/Rhylanor, members of a disgruntled anti-technist group kidnapped Dr. Krenstein and threatened to kill him if the Scout service didn't meet their demands. A young scout named Dur Telemon was part of the all-volunteer raiding team that finally freed Dr. Krenstein; in fact, Dur was the first to reach the Doctor.

After this incident, the Doctor constructed his servant, bodyguard, and experiment in synaptic learning, 'Aybee'.

Dr. Krenstein has been travelling with Dur Telemon and Akidda Laagiir since their chance meeting four years ago.

Role-Playing Notes: Dr. Krenstein, the "Mr. Fix-it" of the group, contributes valuable analytical skills. Together with Aybee, the doctor may contribute unusual insights Dur or even Akidda might otherwise overlook.

The doctor is slightly mischievous in the manner in which he conceals Aybee's true robotic nature—a source of much fun if role-played completely. The doctor seeks new experiences and knowledge for both he and his robot, so he will pursue adventure suggestions readily.

Keep the doctor's age in mind—he is the least able of the group physically, although Aybee helps to make up for this.

AYBEE WAN OWEN

Position: Personal servant and protégé of Dr. Krenstein.

AB-101, or "Aybee", is a pseudobiological robot designed and constructed by Dr. Krenstein. Aybee's apparent UPP is what Dr. Krenstein wishes Aybee to project to others based upon his programming (he is actually capable of much greater values); his intelligence and education are estimated from his computer hardware and software; and his social class is based upon his position with Dr. Krenstein.

Although Aybee's programming gives him certain basic abilities, he lacks true artificial intelligence and thus can make errors in judgment; in abstract situations, this effectively lowers his true skill level. Aybee's 'weapon' is a light laser welder, built into his right arm. Many Imperial worlds specify standards for robot-installed weapons, and Dr. Krenstein has designed Aybee so that his arm (ostensibly used only as a tool) can pass inspection by officials, since laser welders are generally not restricted by local law levels; however, voice override controls allow Dr. Krenstein to use Aybee as a weapon at short range.

Role-Playing Notes: Without a doubt, Aybee is the most unusual of the quartet. He is also the most difficult to role-play effectively.

Aybee is the most valuable piece of equipment the group has. He can record situations in 3-D holograph form (10 minutes' worth, after which it is relegated to 2-D storage), then play them back for future study at the group's leisure. He will quietly observe a situation and report his findings to the doctor, keeping the doctor's safety as his priority.

Aybee is a good source of logical analysis, although his conclusions are devoid of any creativity or revelations beyond the obvious (although sometimes the obvious can seem like a revelation.) Play him as a naïve, knowledge-hungry character. He should make errors in judgment when a situation relies heavily on intuition. He is likely to miss subtle innuendos that humans are so prone to use.

Strangers who find out that Aybee is a robot may react negatively (increase the difficulty of any interpersonal task one level). Most will never suspect from casual observation that Aybee is nothing but a machine.

To determine Aybee is a robot at close (1.5m) range:
Difficult, Robotics, Interview, 2 min
Referee: Roll once during the first encounter. Thereafter roll daily if the character constantly spends extended periods near Aybee. Otherwise, ignore this task.

Aybee's power plant is a closed hydrogen/open oxygen fuel cell. Aybee carries his own hydrogen supply, but the hydrogen is oxidized by oxygen from the air. Aybee is thus much like a true human in this respect—if he loses his oxygen supply, his power plant will not function. Air is "pulled" into his power plant by a respirator that moves his "rib cage" in a manner similar to human breathing action. Aybee's fuel cell operation produces a harmless waste by-product which must be eliminated from time to time: pure water.•

Missing in Transit

ADVENTURE NUMBER 11

—by Gary L. Thomas

INTRODUCTION

Missing in Transit deals with a *Travellers' Digest* journalist and his companions in their continuing tour of the Imperium. The group, in need of funds, agrees to do some investigative work for a patron. The starship the group books passage on never arrives at its destination, and no one knows why.

Chapters: This adventure is in several chapters, most of which are material to be read only by the referee.

The chapters "Spellbound" introduces the players and the situation. This section may be used one of two ways: either read it to the players, or have them each read their characters' parts. The idea in either case is to acquaint them with the characters and their personalities.

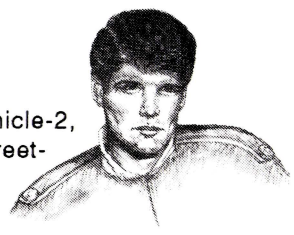
Dates: All dates herein correspond to the Imperial calendar. The starting date of this adventure is 054-1105.

Place: This adventure starts on the world Far Trinity in the Shiwonee subsector of Massilia sector.

Playtested By: Craig Sweigart, Nona Sweigart, Dave Clopton, and RobertParker.

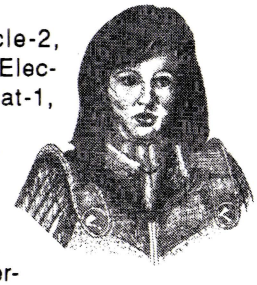
NON-PLAYER CHARACTERS

The following non-player characters are a part of this adventure.



Eren Dugashiin, Scout
544884 Age 28 3 terms
Mechanical-2, Wheeled Vehicle-2, Leader-1, Pilot-1, Stealth-1, Streetwise-1, Tactics-1, Computer-0
Starport B, Medium, Std Atm, Wet World, Mod Pop, Mod Law, High Stellar

Dugashiin was the archaeological liaison for the Imperial Interstellar Scouts Ancient Artifacts Recovery Office on Lagna. About a year ago, he realized that he could supplement his salary by stealing artifacts from the Scouts and selling them on the black market. Things were going well until Fornee, a single male Geonee, heard about something he had and wanted it. Fornee killed Dugashiin two months ago and stole his latest collection of artifacts.



Milili Varunii, Merchant Captain
47A589 Age 34 4 terms
Engineering-2, Grav Vehicle-2, Medical-2, Communications-1, Electronics-1, Legal-1, Ship's Boat-1, Computer-0
Starport B, Small, Vacuum, Dry World, High Pop, High Law, High Stellar

Varunii is the captain of the fat trader *Twilight's Bell*, which she inherited from her mother. While fairly young and inexperienced, she is smart enough to hire a crew smarter than she is, and so far her travels have been successful.

Fornee, Geonee Merchant (Pirate) Captain
8AB977 Age 46 7 terms
Admin-4, Electronics-3, Mechanical-3, Pilot-2, Turret Weapons-2, Linguistics-1, Streetwise-1, Grav Vehicle-0, Computer-0
Starport A, Large, Dense Atm, Wet, High Pop, High Law, High Stellar

Fornee is the Captain of the *Proneela* — he and Captain Varunii are pictured on the front cover of this issue.

Captain Fornee "acquired" his vessel 12 years ago; its previous owners are still looking for him, as he hasn't made a payment now for 11 of those 12 years. Fornee and his crew are "merchants" in the Geonee Cultural Region. The fact that most of the goods they ship don't have permits, or customs duties paid, is irrelevant, they believe, to the business at hand. They're honest merchants insofar as very little of what they carry was actually stolen personally by them. Fornee speaks Galanglic.

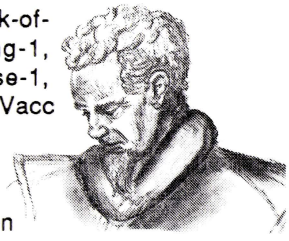
Outis, Chirper
52636x Age 18 0 terms
Psionics-12, Invisibility-12
Starport A, Large, Dense Atm, Wet, High Pop, High Law, High Stellar

Outis is one of the "matchmakers" on the Geonee vessel ("belonging" to Leegwee). He will use his psionics ability whenever awake to remain unseen (except to cameras, robots, and Leegwee).

Leegwee, Geonee Merchant (Pirate) Sergeant
9476B5 Age 34 4 terms
Starport A, Large, Dense Atm, Wet, High Pop, High Law,

High Stellar

Electronics-4, Bribery-2, Jack-of-all-trades-2, Pilot-2, Brawling-1, Forgery-1, Leader-1, Streetwise-1, Computer-0, Grav Vehicle-0, Vacc Suit-0



Gerasee is the "electronics expert" for the Ancient device; he is also second in command on the Geonee starship.

Dreo, Geonee Merchant (Pirate, ex-Marine)

988666 Age 24 1 term

Starport A, Large, Dense Atm, Wet, High Pop, High Law, High Stellar

Large Blade-2, ATV-1, Grav Belt-1, Computer-0, Vacc Suit-0

Dreo is a relatively new member of the *Proneela*, having joined the crew only a few months ago. He speaks Galanglic (rare among Geonee), thanks to an unwilling stint in the Imperial Marines.

SPELLBOUND

Dur Telemon, an ex-Scout, and Akidda Laagiir, his uncle, were sitting in a lounge at the Scout Base on Acon, resting a little before continuing their long journey to Terra.

"Say, Kidd, how do you spell Massilia?" Dur asked.

"M-A-S-S-I—say, what are you doing anyway?"

"I'm writing to my dad, letting him know where I am. How do you spell that again?"

"M-A-S-S-I—why aren't you just using the computer, Dur?"

"My dad likes to get letters in my own handwriting. Costs a little more on the Xboats, but they're more personal that way."

"I would agree with that," Akidda said.

"So how do you spell it?"

"Spell what?"

"Massilia, Kidd. Try to get to the end this time—start with the ells if you'd like."

"You mean ell," Akidda said.

"What?" Dur asked.

"You said ells."

"Yeah, I've got it up to that point, so just start with the ells."

"But there's only one."

"One what?"

"One ell."

"Thanks a lot, Kidd. Is there any more to it, or do I have to guess?"

Akidda shook his head. "I still don't see why you didn't just use the computer, at least for spelling."

"Because I didn't want to mess with it. Besides, Dad doesn't mind a few misspellings."

"In that case, Dur, it doesn't matter how you finish the word."

Dur looked up from his writing. "Uncle Akidda, I will generously give you until the count of 10 to spell Massilia for me, and then I will personally demonstrate what the Scouts taught me about hand-to-hand combat. One, two, three, four—"

"Akidda, I got our tickets for Shiwonee, the richest Ancient site in the whole Imperium. We leave tomorrow—oh, hello, Dur." Theodor Krenstein, the renowned roboticist from the University of Rhylanor, was also a member of this travelling group.

"Five, six, seven—"

Dr. Krenstein's robot companion, Aybee, looked over at Dur. "What is he doing, Akidda?"

"Dur? Oh, he bet me 20 credits that he could count to 10 without stopping."

"Kidd!" Dur glared at his uncle.

"Too bad, Dur, you almost made it. You can pay me the 20 credits now."

"Kidd!"

"All right, Dur, I'll give you another chance later. Krenstein distracted you unfairly."

Dur glared at his uncle again. "Later, Kidd? Sure, I'll be more than happy to settle this with you later, once we're alone. Aybee, will you please spell Massilia for me?"

"Certainly, Dur," the robot said. "M-A-S-S-I-L—"

Akidda didn't pass up this opportunity to interrupt. "So tell us more about where we're going, Doctor."

Dur looked up at his uncle. "Thanks a lot, Kidd. I knew about the ell. But I'll bite. Where are we going, Doc? What was that you were saying about the Ancients yesterday?"

"We're headed for Shiwonee, a most interesting system." The doctor slipped into his old lecturing habits as he explained to his two friends. "You remember from your sophontology classes in school that the Ancients visited Terra at least 300,000 years ago? And the eventual results for this part of the galaxy?"

"Sure, Doc," Dur answered. "The Ancients took humans from Terra to 42 different worlds—"

"I thought it was 46," Akidda said.

"So—42, 46—whatever it is. Anyway, that's what the Solomani Hypothesis says."

"Not exactly, Dur. The Solomani Hypothesis more specifically relates to the origins of the human species, rather than to its ultimate disposition. But to get back to the point, all of these human-inhabited worlds were at one time or another visited by the Ancients who transported the humans there in the first place. Some of these human races, such as the Vilani and Zhodani, developed jump drive, and are classified on that basis as 'major' races."

"Don't forget the Solomani, Doc."

"Right, Dur. At any rate, the best clue as to the possible whereabouts of Ancient artifacts is the location of a human race, whether major or minor."

"Oh, yeah, and you were saying how rare it was to find anything even then. So what's this have to do with Shiwonee, Doc?"

"You see, Dur, when the Vilani first entered this region, thousands of years ago, they were surprised to discover humans in jump-capable ships already here. These were the Geonee—"

"So they're a major race, too? I didn't know that."

"No, Dur, they're not."

"But you said that any race that developed jump drive—"

"Yes, Dur, 'developed'. The Geonee didn't develop jump on their own; rather, they found a jump ship waiting for them—waiting for all of 300,000 years."

"An Ancient ship? That must have helped out their scientists."

"The Geonee have always been a little ahead of the rest of the area, technologically speaking. They still are today, more because of the skill of their researchers rather than any artifacts they've found. But most interesting, all eight worlds of the Geonee Cultural Region are Ancient sites. When we get to Shiwonee, we'll have the opportunity—Akidda, are you all right? You look pale all of a sudden."

Akidda lowered himself carefully into a chair. "I was just thinking, Doctor, about the last time we tangled with Ancient artifacts. We're not going inside anything, are we?"

"No, Akidda, not that I know of."

"And we won't be with any Vargr archaeologists, will we?"

"No, most of the finds have been made in asteroid belts."

"And no guns?" Akidda asked.

"That's right, Doc," Dur said. "That Antiquity museum wasn't my idea of sightseeing."

The doctor laughed. "No Vargr and no guns. My promise. From what I've read, the Geonee on their homeworld of Shiwonee are a peace-loving society."

"All right, then, if you promise, we'll go along without a fight. At least I'm in."

"Thanks for that overwhelming vote of confidence, Akidda. What about you, Dur? Interested?"

"Sure, I'll look at their gizmos. Might be fun for a change."

"Good, then we're all agreed." The doctor smiled.

"Wait, Doc, what about Aybee? He's been mighty quiet this whole time. What's on your mind, Aybee?"

"I-A, Dur".

Dur furrowed his brow. "What?"

"The spelling of Massilia, Dur. M-A-S-S-I-L-I-A."

THE GEONEE AND THE ANCIENTS

The Geonee are a minor human race in Massilia Sector. The race has one of the most interesting histories of any minor human race, and at one time was even believed to be a major human race. The Geonee did have jump drive when first contacted by First Imperium Vilani 10,000 years ago explorers, but it was later determined that the Geonee did not develop this jump drive on their own, but in fact had derived it from recovered Ancient artifacts on their home world.

Despite the archaeological evidence, the Geonee themselves hotly dispute being ranked as a minor race, adding a new twist all their own. Yes, they admit, they did use a derelict Ancient vessel to develop their jump drives, but this does not disqualify them from major race status. Why not? Because, according to the Geonee, they *are* the original Ancients.

The word "Geonee" means "old ones", and is itself a very old term for the inhabitants of the world. The singular, "Adonee", meaning "old one", is rarely used outside the Geonee linguistic region, and in fact the Geonee themselves rarely use the term, preferring "Geonee-draveera" or "descendant of the old ones" to refer to an individual of the race.

Archaeologists who have specialized in the study of the Ancients believe that the mysterious race was shorter than most humans, averaging about 1.4 meters tall. The Geonee fit this size very well, at an average height of 1.5 meters. Some of the richest Ancient sites, too, have been near the Geonee homeworld, and there are occasional rumors that the Imperial Navy once recovered an entire Ancient starship, the *Bradeeva*, floating dead in space between two solar systems. (These recurring rumors are not consistent in precisely which solar systems were involved, or in exactly when this find was discovered.)

In 806, the principal Geonee ambassador to the Imperium, Duke Valreega Neowashee, sued the Imperial Navy in a fruitless attempt to reclaim the vessel as Geonee property. A special Moot commission determined that no such ship existed and closed the case, but the Geonee continue to this day to claim that the incident was covered up.

The Geonee Cultural Region is rich in Ancient artifacts, but not quite as rich as believed by Dr. Krenstein. The Imperium has verified Ancient artifacts recovered from only Lagna and Shiwonee; the Geonee themselves claim that all eight of their worlds were originally inhabited by the "Geonee": that is, the "Ancients".

One interesting note is that all eight of these worlds have extensive asteroid belts. The Geonee claim that these are the remnants of worlds destroyed in the Final War, but most Imperial scientists dispute this, while admitting that the frequency of belts is, statistically speaking, unusually high. The Shiwonee system has three asteroid belts; Shiwonee itself is quite active, seismically, with quakes being common and 44 active volcanoes dotting the globe.

REFEREE'S SYNOPSIS

The four characters are impressed by the Scouts to conduct a simple investigative mission on Lagna, a populous world within the boundaries of the Geonee Cultural Region. Eren Dugashiin, a Scout in charge of collecting and collating Ancient artifacts, has disappeared and foul play is suspected. On the way to Lagna, the ship the characters are travelling in is destroyed in an apparent misjump, but luckily the four are rescued by a passing Geonee "trader". Once aboard the merchant's ship, our heroes learn the secret behind Dugashiin's disappearance, and must stop the merchant from using an incredibly powerful Ancient weapon against the population of Shiwonee, the Geonee homeworld.

(Some of the fun in this adventure springs from the characters' unfamiliarity with Geonee customs. Be sure not to hand this information over too soon: make the players work for it by interacting with the Geonee pirates.)

"ATTRACTING A MATCHMAKER"

The Geonee and the chirpers who live among them share an almost symbiotic relationship with each other. The chirpers, immature Droyne who have not been casted, are psionic, and have the innate ability to cloud the minds of those nearby in order to completely conceal their existence. A chirper that doesn't want to be seen is entirely invisible to a human observer.

The Geonee for their part developed on a world which exerted extreme population pressures because of its

mercurial environment. The culture of the Geonee has found a solution both to its problem of potential overpopulation and to the problem of keeping the semi-intelligent chirpers alive.

In the Geonee language, a chirper is a "selweeda", or "matchmaker". When a Geonee male desires to marry, he must "attract a matchmaker" as an officiating mascot for the bond. To do this, the Geonee constructs a small dwelling for the chirper on his property, and therein places food, water, and whatever else the Geonee thinks might work to attract the chirper. By diligently caring for this dwelling (even though its desired inhabitant is at first invisible), the Geonee gains the trust of the chirper.

After much anxious waiting, the satisfied chirper finally shows itself to the Geonee. A few months later, the chirper may be happy enough in its new home that the Geonee can perform the "calling out" ceremony. Inviting his closest male relatives, he "calls out" for the matchmaker, which briefly shows itself to the visitors. Only after the matchmaker chirper has been seen by the Geonee's brothers and uncles can the Geonee be married. (Naturally, the chirper could be seen at night, while it was asleep, but this does not count according to the culture of the Geonee.)

From this time on, the chirper shows itself more and more to its benefactor as its trust grows, until the Geonee can see it all the time. But his worries are not over. If the matchmaker should ever become displeased with its treatment by the Geonee, and leave, the marriage is instantly dissolved. It makes no difference whether the marriage is brand-new or well-established, whether there are children or not, or whether the couple themselves are happy with their wedded state. According to Geonee culture, it is the presence of the matchmaker which determines the validity of the marriage, and in fact the absence of the matchmaker is the only way to dissolve a marriage (other than death of a spouse).

While this makes it easy for a disgruntled husband to get a divorce (just abuse the chirper a little), happily married men must take extra care that they keep their matchmakers well satisfied.

For most men, this is simply a matter of keeping good food and a comfortable living arrangement for the chirper. But for star travellers, the only way to guarantee the happiness of the chirper is to take it along: it would be both foolish and careless to entrust the creature's care to anyone else.

In very rare circumstances, a Geonee male can "capture" a wife instead of attracting a matchmaker. To do this, the Geonee literally forces the female's relatives to give her up in marriage. When this is attempted, it usually results in bloody violence, because a husband-to-be must be desperate, and such a capture brings shame upon a family.

As is probably clear by now, females in Geonee society do not play a pivotal role, having almost no rights. Women must be "protected" by the men: by their fathers when young, by their husbands when married, and by their sons in later life. Geonee females will not as a rule be found in space.

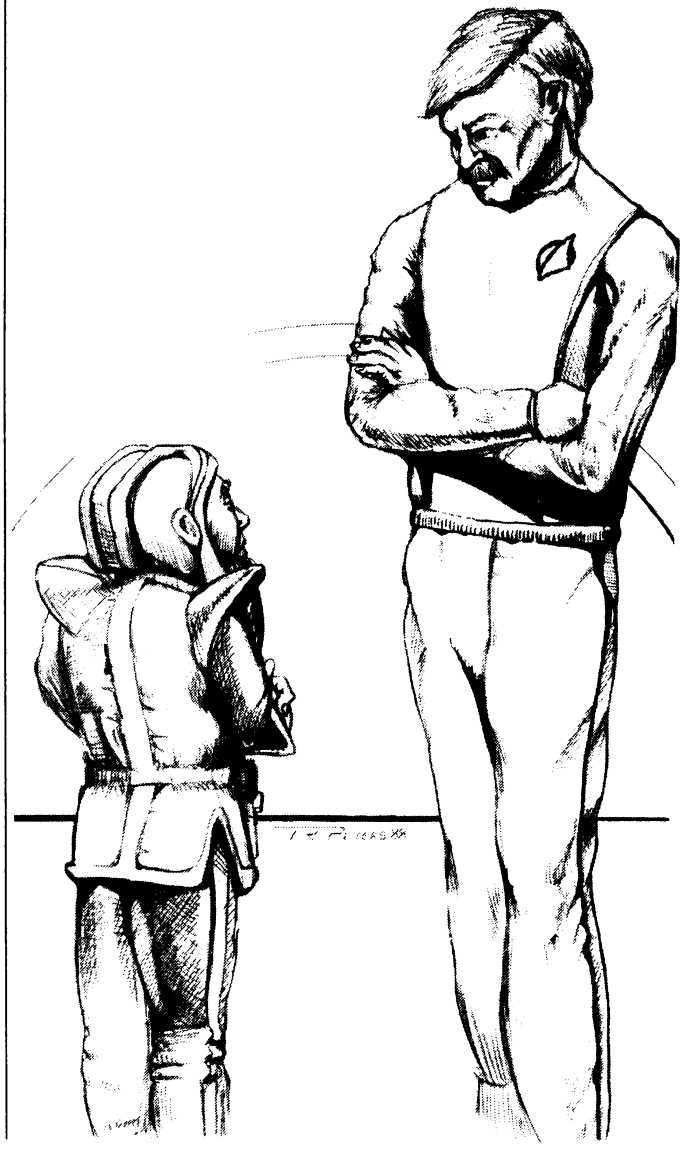
EN ROUTE TO ...

The characters supposedly have booked passage, with whatever meager funds they have on hand, to travel through Talow, Tlasov, and on to Shiwonee. But things don't always work out the way they are planned.

Scouts never really "retire": once a Scout, always a Scout. Many Scouts are on "detached duty" from the service, and can be recalled at any time. Now is Dur's time.

Give the characters a little time to plan the next legs of their journey, but before they can board any commercial vessel Dur Telemon is paged over the base public address system. When he reports to the office, he is given a special mission because of his position of responsibility and trust (besides, his reputation in this region has spread after the Reference incident in Adventure 10).

The Scout Service orders him to travel to Lagna, the most highly populated system in the Geonee Cultural Region, to investigate the disappearance of a man working for the Scouts. Dur will not be allowed to reject this assignment, but if his player objects, remind him of Dur's lifelong loyalty to the Scouts to force the issue. However, if Dur insists that his noble friends accompany him for this assignment, the Scouts in charge will take him up on his offer (they were, after all, with Dur on Reference). Transportation on a



commercial vessel will be provided to Lagna for all four characters.

Supervising the *Twilight's Bell*, a fat trader with tanks in its hold, is Captain Milii Varunii, a woman who inherited the *Bell* from her mother a few years ago. The ship plies the route between Acon and Lagna on a regular basis, and while Captain Varunii is relatively new at her position, her crew is capable and devoted to her.

THE MISSION

Eren Dugashiin was the archaeological liaison for the Geonee worlds, operating from an office on Lagna. By law, the Imperium (through the auspices of the Scout Service) has the right of first refusal on all Ancient artifacts: that is, if a new artifact is discovered, it properly belongs to the Imperium, which may or may not allow it to remain in the hands of its discoverer. Failing to register an artifact is a crime.

Eren Dugashiin was in charge of this operation on Lagna. He decided which artifacts were worthless scraps, and which might have archaeological or technological value. The Imperium compensates those who discover artifacts when it confiscates them; Dugashiin was the man who "signed the checks" for this locally.

His disappearance two months ago is unsettling to the Scouts. Has he been kidnapped? If so, is this a sign of growing anti-Imperial sentiment by the Geonee, or was it a random incident? Are any Ancient artifacts missing? Did Dugashiin run off with them, perhaps, after collecting something of exceptional value?

The Scouts in this region are shorthanded, or they would check on it themselves. In addition, the objectivity of outside investigators (the characters) is an additional bonus in case there is collusion between Dugashiin and others within the Scout Service. The party will have to depend on their own resources while on this mission.

ALONG THE WAY

The *Bell's* cargo on this trip is typical: drums full of sweet syrup made from the bark of the pakupa tree, a total of 2500 kiloliters. Pakupa syrup is a popular delicacy throughout the human regions of Shiwonee Subsector.

The first leg of the trip, from Far Trinity to Hiponee, is without incident. Spend a little time with it, if only to give your players the opportunity to make any special plans. From Hiponee, though, events take a turn for the worse.

The ship starts to move the requisite 100 diameters in order to make a safe jump. Following the old Vilani custom of jump dimming (see the MegaTraveller Imperial Encyclopedia or Travellers' Digest Adventure 4), the lights of the vessel go low, just as it did from Far Trinity. Under ordinary circumstances, the ship would then make its jump and the lights would come back up. But in this case, the lights go completely off and the characters hear a loud metallic wrenching noise.

The amber emergency lights come on immediately and automatically, but before the characters have a chance to react they are hurled against the bulkhead of the room they are in by a sudden lurch of the ship. A few seconds later, the group is flung against the opposite side. (They should also notice by now that the vessel's artificial gravity is no longer working.) Each human character's player needs to make the following roll twice:

To avoid being injured in the "misjump":
Routine, Dex, (fateful)
Referee: This task must be successfully rolled twice for each human character, or damage (as per club) is suffered. Aybee is a special case. In the second blow, for some reason (unknown to the players) he ceases to function. Other characters may also go unconscious from this damage.

Your goal throughout this part of the adventure is to mislead your players (and the characters) into thinking that a misjump has occurred. Describe what is going on in dramatic terms; take your time so that the suspense builds up. Obviously, the ship is in trouble, but how much trouble is not immediately known. By describing the situation piecemeal, you heighten it. This also gives the characters a chance to react to what is going on. They may want to search for vacc suits, or cower under a table. Neither action does any good, but let them play it out.

One other event that's sure to worry the characters is a subtle one. Choose a character at random (not Aybee, of course, because he's "unconscious") and tell the player that he hears a "soft hissing sound". Is air leaking out of the cabin? Is this the end? Yes and no. Make up a UTP and let the players make as many rolls as necessary until all characters have passed out from the thinning air. If the characters are close to a window, let the players look at the illustration on page 1 to give them a better idea of what is happening. Bits and pieces of their vessel are floating loose in space and a menacing-looking craft is approaching. (This is in fact a popular style for Geonee vessels — but no need to tell the players that.)

RESCUE

Let the players worry about pirates, and the lonely coldness of death in space, and then revive the characters one by one. All four of them are lying on the floor of what seems to be a room in a starship. Aybee is still not functioning, but the other three characters seem to be all right, other than their bruises.

The room itself is obvious too small for the characters. The ceiling is low, one would have to stoop to pass through the doorway, and the fresher facilities available are set considerably closer to the floor than is common on most human vessels.

Give the characters a little time to plan their next course of action, and then bring in one of the Geonee. He looks the characters over, but will not speak unless spoken to. When he is finally addressed, he looks puzzled and answers in his own tongue, which none of the characters understands.

Play this part of the adventure by ear. The characters should be unsure of their situation, but not so frightened at this point that they attempt violence. If they are a little patient, one of the Geonee (Dreo) speaks a little Galanglic because of his term of service with the Imperial Marines. Once introduced to the characters, he can clear up a number of their questions.

What happened to the *Twilight's Bell*? Dreo doesn't know anything about it.

Where are the characters now? On board the *Proneela*, a Geonee merchant vessel.

How did the characters get here? They were rescued by the crew of the *Proneela*, which happened to be in the vicinity.

Where is the *Bell's* crew? The ones that survived are safe, with the captain.

Where are we headed now? The *Proneela* is in jump, on its way to Dreva (the same destination as that of the *Twilight's Bell*).

Where is all of our luggage? It's in the hold, and can be accessed at any time, assuming it's actually there. Some of the freight on board the *Bell* floated away through a breach in the hull. (Let the players stew a little: in fact, all of the character's belongings were recovered, although some of it is sticky — having had pakupa syrup spilled on it.)

Dreo himself is a little curious about what he calls "the robot" — Aybee. Is it stolen? Is it for sale? He offers these questions up in an offhand way, as if they are ones he commonly asks.

MEETING A GEONEE CULTURAL DIFFERENCE

Another question that Dreo has is more important. Captain Fornee, he says, needs to know whether the four characters "belong to the woman captain". If pressed to explain, he acts as though he does not understand the difficulty. The rest of the *Bell's* crew, he can say, obviously belonged to her. Dreo's captain now needs to know the status of these other four.

The reason for this line of questioning is the Geonee cultural bias against an equal place for women. Obviously, the woman herself must be protected (that is, locked safely away). Similarly, any possession she has must be equally taken care of. In this case, her crew is also kept under lock and key. If the characters assent to belonging to Captain Varunii, they will be locked up in their (small) cabin and not treated very well. If they claim to be independent, they will be allowed to wander around the ship (except for the bridge, of course) as long as they don't get in the way.

If the characters make the mistake of claiming allegiance to the *Bell's* captain, lock them up and make their lives unpleasant at first, but allow the Geonee to relent later. The Geonee would not want to lock up independent males just because of a simple cultural misunderstanding.

ON BOARD THE *PRONEELA*

The Geonee ship has a crew of seven, including Captain Fornee. Dreo can take the characters to the hold, where they can retrieve their belongings. Material recovered from the *Bell* is stacked to one side of the crowded hold, which measures 90m x 20m x 1.5m, taking up one entire deck of the ship.

The characters should be restrained from conducting too much snooping at this point. Dreo will keep a pretty close eye on them, at least at first, so all they will be able to get is a general idea of the place. The hold looks like many they have seen before, except that crates are not stacked as high, and aisles between stacks are not as neat as is usually the case. It would not be difficult to hide in this hold. (The aft half of the hold consists of auxiliary fuel tanks and a fuel purification plant, giving the ship jump-2 capacity.)

Presumably, one of Dr. Krenstein's first needs will be his electronic tool kit. Once back in the cabin with it, he can try to repair Aybee. Use the standard UTP diagnosis and repair tasks for this (you can find this information in **MegaTraveller**, or write to us, enclosing a self-addressed stamped envelope). Aybee's damage is Minor; Krenstein is considered to be working "in the field", but he does have the necessary tools and spare parts in his kit; applicable characteristics are his education and robotics skill; the time increment for the task is one hour.

While Krenstein works on Aybee, one or two of the Geonee wander in from time to time to watch the goings-on.

If a new Ancient artifact is discovered, it properly belongs to the Imperium ... failing to register an artifact is a crime.

They are clearly interested in this, and perhaps a little envious, judging from the looks on their faces.

One of the Geonee, named Gerasee, spends more time watching than all the rest of the crew combined. If he gets the chance, he will randomly pick up some of Krenstein's tools, examining them closely. If Krenstein or one of the other characters interferes with this, Gerasee will storm out of the room in a huff. Otherwise, he will leave for a few minutes and then come back with his own tool kit. While these are built for smaller hands with stubbier fingers, Krenstein will nonetheless be able to use them if he wishes. Their higher tech level of G (16) will cut his time for repair in half.

IN TRANSIT

This adventure is designed to take place from this point on entirely aboard the *Proneela*. If the characters get a hankering to get off the ship along the way, give them good reasons not to.

Hiponee, the first stop, has a gas giant; the *Proneela* does not stay in this system any longer than it needs to to scoop fuel.

AYBEE SEES TOO MUCH

Once Aybee is repaired, things can start to get back to normal for the group. The characters have time on their hands until they reach their next stop, Hiponee. While the Geonee ship does have library computer facilities on board, the facilities are somewhat inconvenient. They will not accept voice commands, but instead everything must be tapped out on a keyboard of the Geonee alphabet, arranged differently from anything the characters have seen. With some help from Dreo, the library computer can be made to operate in Galanglic, but the keyboard is still a hassle.

What's more, the library data is incomplete. The data have not been updated for 12 years, and what's there has gaps in it. From time to time, the Geonee have needed more of their computer's memory for shipboard functions, so they have over the years "borrowed" space from the library data. In particular, the library computer has *none* of the cultural information described above. The only way for the characters to learn about the Geonee is by interacting with them. If they have a question, they'll have to ask it if they want an answer.

While roaming the ship, Aybee will of course see some of the chirpers attracted to the married members of the crew; to the rest of the characters the chirpers will be invisible. Aybee has never seen a chirper before, and there is no reference to them in any of his computer memory. Take the player handling Aybee away from the rest of the group, and tell him that he sees short, gray, winged creatures with bug-like eyes. The creatures stare at him with puzzled expressions, but no one else seems to notice them.

Once back together with the rest of the group, play the situation for laughs. Don't help out Aybee's player; let him explain what's going on to the rest of the group. Krenstein may even want to check over Aybee's circuits: first he was damaged, and now he's seeing things...

The best solution is for Krenstein to hook a few wires on to Aybee so he can dump some of his recent memories to an external holocrystal, which could then be displayed on Akidda's holorecorder. Once this is done, Krenstein and Akidda will recognize the small creature as a chirper, an immature, uncasted Droyne.

SEE NO EVIL

If any of the characters ask Dreo or Captain Fornee about the chirper, the Geonee are immediately upset. If one of the humans has seen a matchmaker, then this could be a signal that the matchmaker is losing interest in its true owner. If this happened, the poor Geonee would find himself divorced from his wife back home. In playing the Geonee, remember the importance of this. If the players are not quite specific in stating that it was the robot that glimpsed the little creatures, feel free to fly off the handle. Now would be a good time to confine the characters to their cabin.

Whenever the players realize that they should be a little more clear, use this as an opportunity to explain to them how Geonee culture works. Don't lay things out on a silver platter — remember that to a Geonee mind, these are the private things between a husband and wife, and aren't to be explained to "humans". (The Geonee use this term for all non-Geonee, remember.) The Geonee are reticent; if the characters can not draw them out, they will learn nothing. (This is a good time to use a personal interaction task — Akidda has the best modifiers.)

IN THE HOLD

If the characters are clever enough to keep their freedom (or at least to regain it aboard the Geonee craft), they may well want to investigate the hold a little more. If the players don't initiate this on their own, give them opportunity to collect their belongings from the hold.

If they investigate on their own, the first couple of crates will contain only ordinary goods marked in the Geonee language. The third one they pry open, however, will be of much more interest. It contains four smaller boxes, each with Galanglic markings showing them to have once belonged to the Imperial Interstellar Scouts Ancient Artifacts Recovery Office on Lagna, under the care of Eren Dugashiin. If the characters open these smaller boxes, they find more goodies.

Box 1: Contains an object made of a white porcelain-like material. The object is rectangular and flat, about 25 cm across diagonally, with four bent tubes extending, one from

each corner. Each of these tubes is about 15 cm long.

Referee: This device is a psionically-activated personal white globe generator. The user sets the platform on the ground, with the legs down, and then stands on it and concentrates to create the globe. A psionic strength of at least 4 is necessary to operate the device.

Box 2: Contains a shiny, apparently solid, black half-sphere, about 30 cm across. Reaching for it, however, reveals that the effect is illusory, as from a holographic display. In the center of the globe is a short baton, about 10 cm long. Picking it up shows that the half-sphere is actually a complete sphere, but when held near a solid surface (or the bottom of the box) only part of the effect can be seen.

Referee: The baton has a thumb switch to turn the effect on and off. At one time, the effect could be increased in size with the same switch, but the baton no longer functions completely. The baton was part of a high-tech hide-and-seek combat game.

Box 3: Contains a large, rigid disk, about 2 meters in diameter, apparently made from some metallic alloy.

Referee: This is a non-working teleportation disk as described in *Secret of the Ancients*.

Box 4: This smallest box contains two small geometric shapes, a pyramid and a sphere, each about one cm across. The shapes appear to be made of a nickel-like metal, but the corners of the pyramid and two opposite poles of the sphere show signs of wear, and are discolored to a coppery hue.

Referee: These were once batteries, powered by the motion of sub-atomic particles, but have lost their charge long ago.

Box 5: This largest of boxes is empty. Its contents have been installed on the *Proneela's* turret bay.

THE TURRET BAY

Presuming that the four characters are reasonably well behaved and do not attempt to hijack the *Proneela*, Fornee will eventually show them his pride and joy, the tool which he will use to capture a wife from Shiwonee.

Installed in a turret bay, the strange device was taken from Eren Dugashiin after Dugashiin tried to cheat Fornee on a shipment of stolen Ancient artifacts. You can show the illustration of the Geonee examining the device to your players to give them an idea of its physical shape and size. Fornee believes that the device is a weapon, and in fact it is what he used to destroy the *Twilight's Bell* (the vessel was well-maintained, and did not suffer a misjump) as an initial test of the weapon's prowess.

When the group reaches the Stenardee system, the mysterious device will be tested again, aimed at the surface of a moon of a gas giant. Fornee expects that the device will cause minor damage to the ground, causing explosions and minor disruption. What he doesn't realize is that the "weapon" is self-setting: his technicians, in their tinkering, have disabled some of the device's controls. Thus, while it functioned at a certain power level when aimed at the *Bell*, and wrecked the ship, it will operate at a correspondingly higher level against a moon.

Ever wonder where all those asteroid belts in the Geonee Cultural Region came from? Now you know. Scratch one moon. (Actually, most of the belts are ordinary, but a couple *were* research, and one or two were from the Final War.)

In fact, while Fornee and his shipmates watch, the uninhabited moon vibrates a little, then dissolves suddenly into millions of pieces, spewing debris around itself in a silent explosion. Captain Fornee and his crew are delighted; the characters should be aghast at this demonstration. Fornee can now travel to Shiwonee and capture a wife, using the force of his new weapon as a potent persuader to his prospective bride's family. The characters can work their tails off trying to prevent this catastrophe.

What is this incredible device? The weapon is not really a weapon. It was a research tool, developed by the Ancients to test stress on tectonic plates by generating seismic waves and causing quakes. Shiwonee, with its unstable world tectonics, was the ideal site for this experimentation.

The device powers itself by breaking apart hydrogen molecules nearby. This worked great in deep space 300,000 years ago, because the Ancients always conducted the experiments near a gas giant. The Geonee are not quite that smart, and about this time they should start to notice that much of their ship's fuel has "leaked out" somehow. Aybee should notice the same thing happening to his fuel cell: his internal sensors report that in the last few moments his hydrogen supply suddenly dropped about 40 percent.

THE AFTERMATH

As it turns out, the operation of the seismic gun against the Stenardee moon has damaged its internal workings, so it will not fire again; Fornee will probably end up a bachelor at the end of his days. But the characters don't know that, so they should have a good time trying to grab this thing, or trying to convince Fornee to try something else. "Hey, Fornee, we know about this chirpernip — like catnip, y'know — the little guys love it. They can't resist. We know where this stuff grows by the ton. If you don't wipe out Shiwonee, we'll tell you where it is, all right?"

The characters, given the incentive of saving the population of an entire world, should be able to think of something. The anti-hijacking program on the *Proneela* is quite effective, and most of these efforts will prove fruitless. But then again, having a pseudo-biological robot with a laser welder built into his arm may help turn the tide.

The most obvious solution would be to verbally persuade Fornee from his plans. Another method might be to sneak onto the turret bay and physically wreck the device itself. A third plan would be to warn Shiwonee somehow, so that its defenses could attack the *Proneela* before it could strike. Give the players free rein here, allowing them to conduct the kind of scenario that they enjoy most.

Invent UTPs as needed for the finale. Any reasonable plan should be given a good chance of succeeding; Fornee, in particular, will be less than cautious as the fulfillment of his quest nears. Ideally, the characters will be able not only to stop the attack against Shiwonee, but also to recover the Ancient "weapon" and turn it over to the proper authorities. The Scout Service has responsibility for the care and study of Ancient artifacts.

SHIWONEE: THE GEONEE HOMEWORLD

GRAND SURVEY WORLD PROFILE

World Name:	Shiwonee/Shiwonee/ Massilia
Location:	Massilia 1430
UPP:	A-A86831-G

Physical Data:

Diameter:	16,300 km
Density:	1.04
Mass:	2.03
Surface Gravity:	1.3 g
Rotation Period:	21h 47m 34s
Orbital Period:	95.58 years
Seasons:	See below
Axial Tilt:	43°
Orbital Eccentricity:	0.010
Satellites:	3
Surface Atm Pressure:	1.5 atm
Atm Composition:	Standard oxygen-nitrogen mix, dense
Atm Terraforming:	Yes
Hyd Percentage:	64%
Hyd Composition:	Std oxygen-nitrogen mix
Hyd Terraforming:	Yes

Temperature:

Base Surface Temp:	16°C
Axial Tilt Modifiers:	+25.8°C, -43°C
Rotation Modifiers:	+4.4°C, -5.5°C
Latitude Modifiers:	+/-8°C per hex row
Orbital Eccentricity:	+/-3°C
Other Modifiers:	None
Weather Control:	Yes
Grnhouse Terraforming:	Yes
Albedo Terraforming:	Yes

Mapping Data:

Nbr Tectonic Plates:	11
Native Life:	Yes
Terrain Terraforming:	Yes
Major Continents:	2
Minor Continents:	1

Seismic Data:

Stress Factor:	8
Notable Volcanoes:	44

Resources:

Natural Resources:	Agricultural, Ores, Radioactives, Gems
Processed Resources:	Agricultural, Alloys, Agroproducts
Manufactured Products:	Weapons, Mech. Parts, Electronics, Gravitics

Population & Ports:

World Population:	456,920,000
Cities:	Other than the equatorial starports and the orbital cities (5 and 3 respectively), there are no permanent cities larger than small town size due to the essentially nomadic way of life on the planet.

GRAND CENSUS CULTURAL PROFILE

Cultural Profile:

Progressiveness-Att:	Conservative
Progressiveness-Act:	Indifferent
Aggresiveness-Att:	Unaggressive
Aggresiveness-Act:	Neutral
Global Extent:	Harmonious
Interstellar Extent:	Aloof

Technology Profile:

High Common:	16
Low Common:	15
Energy:	16
Computers/Robotics:	16
Communications:	16
Medical:	15
Environment:	16
Land Transport:	16
Water Transport:	16
Air Transport:	16
Space Transport:	16
Personal Weapons:	16
Heavy Weapons:	15

Government Type: Self-perpetuating oligarchy. The Meeralo Council consists of 18 married men. Term is for life, replacement chosen by the predecessor.

Shiwonee/Shiwonee (1430 A-A86831-G) is the homeworld of the minor race of humans known as the Geonee. Originally visited by Vilani traders during the First Imperium, Shiwonee was rich in Ancient artifacts. The planet had a large population of humans and chirpers living in an apparently symbiotic relationship. The Geonee are a short, stocky, and very muscular race. Their average height is about 1.5 meters and average weight is about 65 kilograms.

The Geonee believe themselves to be the Ancients. There are three reasons for this. First, the Geonee had one of the highest tech levels of all races discovered by the Vilani. Second, Geonee legends and "memories" tell of a time when the race travelled among the stars until a great war. Third, this planet contains one of the most extensive sets of Ancient ruins, including facilities that were obviously set up for humans.

The Geonee are a nomadic race because of the climate of the planet. With such a long year and the high tilt of the axis, the seasonal change forces the temperate zone population to gradually move across the face of the world. Certain areas come into availability for planting and hunting for several years, but become unusable as the climate shifts.

The planetary population has stabilized around the present figure for the last 200,000 years. Because of certain cutural constraints, marriages and large families are less common than among other human minor races. Almost all species of life on Shiwonee have evolved with some form of mass migration, and the Geonee culture allows the humans this same necessary survival tactic.

Plants and animals are nomadic; as the temperate zone moves, so do the flora and fauna. Over several decades, a spot will change from an icy desert to a cold, grassy steppe, then into a lightly and eventually heavily forested area before starting its metamorphosis back into the icy desert in order to start the cycle anew.

Not only the plants and animals, but entire cities of humans move around Shiwonee with the weather. Land is held in a family for generations, so that, after centuries of moving, descendants hold title to land (and occasionally buildings) lived on by their ancestors centuries before.•

SHIWONEE SUBSECTOR

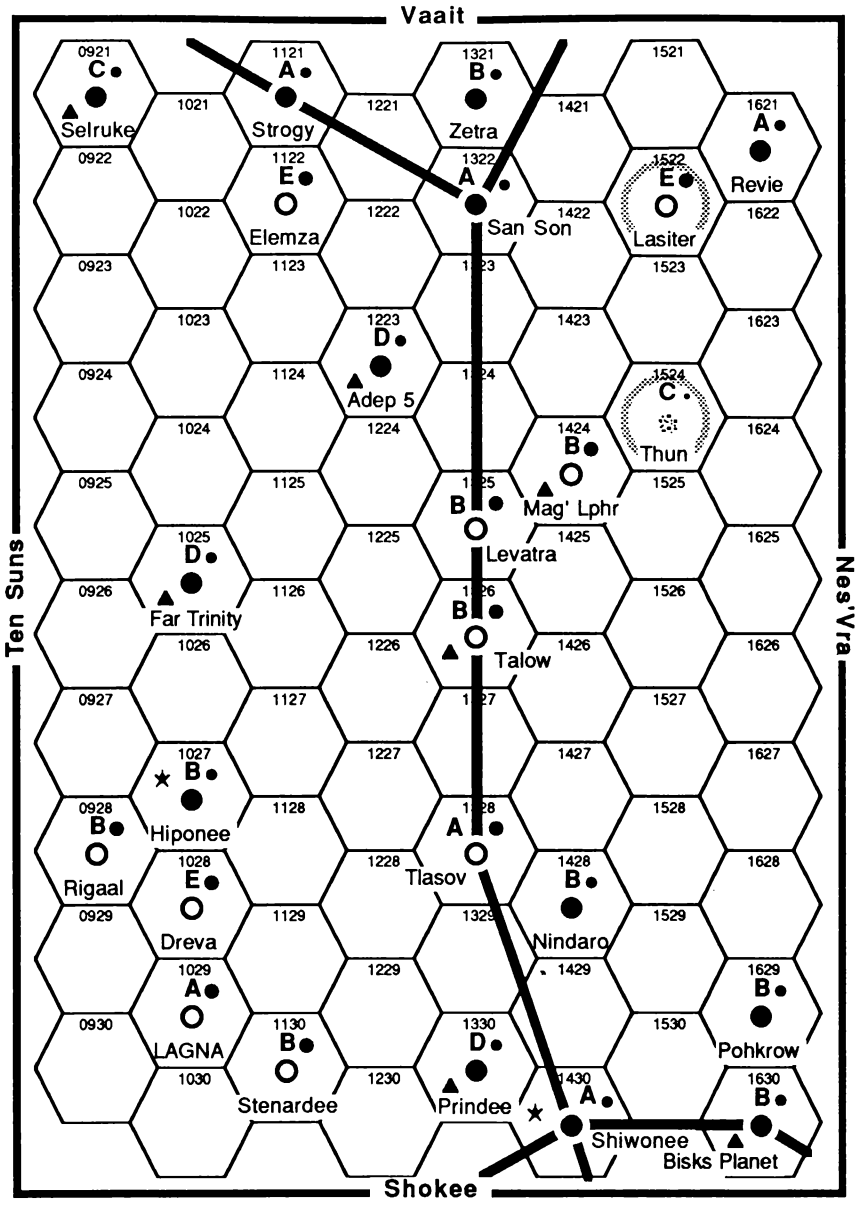
The Shiwonee Subsector (subsector J of the Massilia sector) held a great surprise for the Vilani of the First Imperium. Records from that distant time display the shock the Vilani felt when they discovered another *starfaring* human race in this subsector: the Geonee. Up until this time, the Vilani alone ruled the stars as the only race to have independently discovered jump drive.

After several centuries, the Vilani eventually learned that the Geonee had not "invented" their jump drive at all, but had copied the drive in a derilect starship found orbiting in a planetoid belt of their homeworld system. The question was: who made the derilect starship? No one knew for sure. The Geonee claimed their own ancestors did, but the Vilani remained unconvinced. Today it is known that another race known as the Ancients built the derilect ship. Undaunted, the Geonee claim they are the Ancients, although few other authorities share their view.

Lasiter and Thun are in the midst of an escalating intersystem conflict, although Thun has a definite advantage, both in technology and in facilities. If the incidents get much worse, however, it is likely the Imperium will intervene.

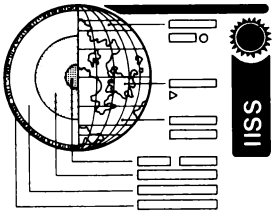
Name	*Location*	*UPP*	*Bases*	*Classifications*	*Data*	*Align*	*Zone*
Selruke	0921	C352422-B	S	Ni Po	213	Im	
Rigaal	0928	B100679-E		Ni Va Na	714	Im	
Far Trinity	1025	D767661-7	S	Ni Ri Ag O:0826	601	Im	
Hiponee	1027	B686351-B	N	Ni	721	Im	
Dreva	1028	E30089D-7		Va Na	610	Im	
Lagna	1029	A110A97-G		Hi In Na	231	Im	
Strogy	1121	A425347-E		Ni Xb	604	Im	
Elemza	1122	E10046B-9		Ni Va	303	Im	
Stenardee	1130	B110346-D		Ni	114	Im	
Adep 5	1223	D45458B-7	S	Ni Ag	903	Im	
Zetra	1321	B7A2544-B		Ni	813	Im	
San Son	1322	A864337-E		Ni Xb	803	Im	
Levatra	1325	B200262-E		Ni Va O:1424	503	Im	
Talow	1326	B7B0676-A	S	Ni De Xb	102	Im	
Tlasov	1328	A100663-F		Ni Va Na Xb O:1430	903	Im	
Prindee	1330	D443578-9	S	Ni Po	524	Im	
Mag' Lphr	1424	B100435-F	S	Ni Va	703	Im	
Nindaro	1428	B9896BB-A		Ni	300	Im	
Shiwonee	1430	AA86831-G	N	Ni Cp An Xb	433	Im	
Lasiter	1522	E210843-9		Na	302	Im	A
Thun	1524	C000653-D		Ni As Na	614	Im	A
Revie	1621	A978757-D		Ag	805	Im	
Pohkrow	1629	B568338-C		Ni	502	Im	
Bisks Planet	1630	B55A476-E	S	Ni Wa	112	Im	

The Shiwonee subsector contains 24 worlds with a total population of 23.555 billion. The highest population is 28.3 billion at Lagna, the highest tech level is G at Shiwonee. All worlds are members of the Imperium. The Data column lists the population multiple, number of planetoid belts, and number of gas giants. Key: An=Ancient Site. Cp=Subsector Capital. Xb=Xboat Station. O:=Owner.



Shiwonee Subsector

Subsector J of Massilia



Far Trinity

SYSTEM SURVEY

—by John A. Theisen

System Survey, a new regular feature, describes a single star system and its main world in great detail. In the case of Far Trinity, the continuation approach (as elaborated in GDW's Book 6, Scouts*) was used for preliminary star system generation. Information and procedures appearing in DGP's* Grand Survey *and* Grand Census *completed the process. While it is not by any means required that the referee have these publications to consult in order to understand this system survey, certain terms used below may be unfamiliar. In any event, the above-mentioned publications—as well as GDW's* Atlas of the Imperium*—are still quite useful.*

Far Trinity is the main world in the Otero star system, located in Massilia Sector. The information contained in this system survey is based on the most recent data available, as obtained from the Imperial Interstellar Scout Service. As a matter of policy, the declassified contents of this survey should be made available at the request of any party interested in travelling to the Far Trinity system.

GENERAL SYSTEM DATA AND HISTORY

Far Trinity/Massilia (1025 D767661-7) is the third planet orbiting the F4 V main sequence star Otero, the primary in a binary system. Including Far Trinity, a total of seven planets and six satellites orbit Otero and its M4 sub-dwarf companion star, Socorro. Located in the habitable zone, Far Trinity and its two satellites, Tularosa and Oscuro, are the most ideally situated for colonization and settlements. At this time, however, only Far Trinity and Oscuro have sizable permanent populations.

It is not known exactly when the Otero system was first colonized, though there is evidence that a small outpost may have existed on Far Trinity as early as 159. It is currently believed that the first colonists were part of a "lost expedition", eventually crashing on the world and reduced by environmental hardships and misfortune to a very primitive technological (some might say barbaric) state.

Despite hazardous seismic and volcanic activity, the population gradually grew as the world's inhabitants learned to cope with their surroundings. Unfortunately, the scarcity of the most fundamental survival needs and the relatively isolated location in the sector meant that advances in science and engineering occurred at a much slower rate than typical human populations experienced.

Few outsiders made contact with the planet and local technological developments took place in seclusion. As recently as the IISS System Survey of 884, Far Trinity's high common tech level had reached only tech level 4.

During the Fourth Frontier War (1082 to 1084), the neighboring system of Oppenheim/Massilia (0826-B554400-D) decided to "liberate the Otero system from its currently less developed state," as one contemporary political analyst described it. Using the False War as a coincidental but timely diversion, Oppenheimer's local navy moved in with an elaborate show of force.

Though casualties were by all reports inconsequential, Far Trinity became the captive colony of its numerically inferior—but technologically far superior—neighbor. With Imperial attention drawn toward the Spinward Marches, this action (peaceful as it was) scarcely received any notice beyond the immediate subsector. An unwritten agreement was made that as long as Oppen-heimer did not commit any flagrant acts of conquest, Far Trinity's new status as a subservient colony could continue indefinitely.

Though the "Trinitants," as the inhabitants of Far Trinity call themselves, are not entirely pleased with their current situation, they are unlikely to rise up in arms and attempt the overthrow of their government. Such an action would be far too radical to fit with their tradition-minded perspective of the universe. In fact, they often refer in private to their captors as "Hoppies," a term that has inspired both anger and amusement upon its recipients.

FAR TRINITY'S SATELLITES

Tularosa (Y666163-6) is the home of the system's Scout base, operated by carefully-supervised Trinitants. This huge satellite, literally large enough to constitute a double-planet with Far Trinity, is largely to blame for that world's incredibly high seismic stress, and vice versa.

In addition to earthquakes and volcanic activity, enormous tides are generated by each globe's sheer presence, presenting considerable danger to anyone attempting to live along the coastlines of either world. Nevertheless, Tularosa would be an ideal world to colonize at some time in the distant future when either Far Trinity or Oppenheimer begins to suffer from overpopulation (an event that nonetheless remains unlikely for the next several centuries).

Oscuro (F220564-6) is a penal colony, garrisoned by an army detachment from Oppenheimer and utilized by law enforcement agencies throughout the subsector. Though few lawbreakers incarcerated here are from Far Trinity or Oppenheimer, shrewd speculators saw an opportunity to make a substantial profit by using this world, which has little to offer in the way of resources.

Apart from its restrictions on weapons, the Oscuro institution more closely resembles enormous barracks than anything; prisoners are pretty much free to do whatever they like as long as they cause no trouble. Unfortunately, entertainment is in short supply on this world; many minor occasions give rise to large, sanctioned festivities. On 068-1112, an especially elaborate ceremony took place, marking the arrival of the five-hundred-thousandth inmate.

OTHER WORLDS

The small gas giant of Almira, orbiting at approximately 10.0 AU, provides a ready source of hydrogen compounds for interstellar craft; it is not uncommon to find one or more Oppenheimer picket ships in patrolling orbit. Oppenheimer also maintains three very small outposts on the planets of Artesia and Morenci, as well as on La Huerta, one of Artesia's satellites. No specific research is taking place at

any of these facilities, and the purpose for their existence appears to be one of planetary pride and glory rather than for any useful scientific developments. The remaining planets and satellites are of little interest.

PHYSICAL DATA

A moderately large world, Far Trinity is a nearly perfect textbook example of planetary density and standard surface atmospheric composition and pressure. Ship crews accustomed to operating in a 1.0 g environment will find this world's weaker gravity a mildly buoyant change. The rotation period of 25 hours makes it easy for humans to adjust.

The 629-day year has proven both an advantage and a disadvantage for Trinitants, permitting longer growing seasons for hardy crops, but also resulting in extended periods without any new agroproducts. The difference in length between the seasons can be partly attributed to the orbital eccentricity and a slight axial "shimmy," as the planet wobbles its way to apastron and periastron.

As is the custom elsewhere, separate planetary calendars are maintained for the local seasons and for Imperial time. One additional day, known as "Salvage Day," is added into the midsummer every fourth year. This major feasting holiday, presumably dating to the world's original inhabitants, is a day for personal reflection and a philosophical celebration of life.

The moderate tilt of this world combined with a surface more than two-thirds covered by water and the tremendous gravitational stresses produced by the satellite Tularosa, result in phenomenal ocean tides and storms as well as earthquakes, particularly during spring and fall.

Tidal changes (over the period of one day) as large as 300 meters have been recorded on rare occasions. Painful experiences with deadly floods have taught the inhabitants to build their cities a safe distance inward from the ocean (often 100 km or more, and generally at least 1,000 meters above sea level).

Land masses on Far Trinity consist of three major and four minor continents, with several major islands and archipelagoes. Fortunately for its inhabitants, the world's outer crust is mounted on only three distinct tectonic plates, two of which make up 99% of the surface area. The presence of many smaller plates would have led to earthquake activity spread over much of the potentially-inhabitable areas. As it is, most (but not all) of the planet's 62 active volcanoes are found along the borders between the two largest plates; this is also where devastating seismic activity tends to occur.

When humans arrived on Far Trinity, they were the first sentient life forms on the world; no native life existed before them. Nevertheless, they discovered a world rich in natural resources. Unfortunately, the earliest settlers were not in a position to take advantage of the planet's potential wealth, a situation the Oppenheimer captors are intending to remedy with reasonable speed.

Foodstuffs are an abundant and excellent low-tech export, easily produced with minimal technological assistance from the Hoppies. As the world's technological level gradually increases under the captive government's tutelage, more and more manufactured goods will be produced on the planet. Even now, certain select components are being machined and fabricated for weapons, as well as exportable mechanical, electronic, and gravitic devices.

Though the world's population is currently over 6 million, the largest city, Relzeg, has slightly fewer than 100,000 inhabitants. This was the result of a zoning law passed by the Trinitants several centuries before their conquest in 1084. Having experienced floods, epidemics, earthquakes. volcanic eruptions, and other related natural disasters, the leaders decided to ban the creation of any city with more than 100,000 inhabitants, so that even if an entire city were obliterated by disaster, others far enough away would survive. If the population of a city grew too large, its most recent emigrants were forced by law to move elsewhere. Although this rule may no longer be needed, it is still strictly enforced; only military personnel and short-term visitors (such as offworlders) are recognized as exceptions.

The only starport on the planet, type D, is located in Garsiel, the world's administrative and judicial center. In addition, Rarlinic (the educational and cultural center) and Relzeg (the financial and industrial center) are the sites of type H spaceports, neither of which sees frequent use. Oppenheimer is unwilling to see widespread spaceflight in the Otero system, preferring to maintain a firm control on Far Trinity's contacts with other offworlders.

Deemed by most as too cost-inefficient in light of the world's peculiar environment, no terraforming of any sort has taken place on Far Trinity to date. (Officials on Oppenheimer refuse to comment on whether any plans are being made for such a project.)

CULTURAL PROFILE

From a cultural standpoint, Far Trinity is a complex world seemingly filled with contradiction. Yet cultures cannot survive if they are inconsistent: if one examines Far Trinity's people closely, a pattern begins to emerge. First of all, however, several important principles must be acknowledged.

Few accurate records remain from the colony's early history, and most Trinitants cannot accurately describe the highlights of their own world's chronology. When they speak of the past at all (and they do frequently), it is often referred to in vague and obscure tones as "the Dark Times."

Because of this obscurity, and the tremendous effort needed just to survive during the colony's expansion, the people became accustomed to accepting certain fundamental technology involved in living from day to day. For example, if a certain type of rifle would kill a predator reliably, then no one would expend effort to invent a better rifle; this one would continue to suffice. Such a frontier mentality sets in quickly and proves intractably slow to leave.

Cut off from almost the entire Imperium and unable to interact freely with other interstellar cultures, the culture of Far Trinity evolved at its own pace in a figurative vacuum. Thus, a lack of ideas and innovation became the norm—not because the people were unwise or backward culturally, but because experimentation and progressiveness are most often found in cultures that are able to devote their energies to more than mere existence.

Stability and long-standing tradition have therefore become the watchwords of Trinitant culture. If a revolutionary new idea is introduced, the most common reaction is: "Why should we do it this way, when the way we have been doing it has worked for the last five centuries?" The ideas are not

rabidly rejected by fervent zealots, but rather are met with polite skepticism and a bit of puzzlement; the wilder the idea, the greater the indifference.

Except when fighting the elements, the people of Far Trinity are remarkably peaceable in nature. Their relationships among themselves are examples of reasonable harmony and general cooperation, often the direct result of helping one another to survive ordeal after ordeal. The population of few planets work together in the best interests of all as well as the Trinitants do. They are true believers in "the greatest good for the greatest numbers."

Despite their own worldly cooperation, they are (once again) indifferent toward affairs taking place offorld, an attitude often perceived unfavorably as alooness. Yet this is a predictable attitude, the result of having been excluded from interstellar affairs for so many centuries.

Forced into self-sufficiency during good times and bad, a sense of self-confident independence runs deep through the average Trinitant. Their attitude of "What has the universe done for me lately?" can be seen as perfectly justifiable, given their circumstances. Once again, no animosity is felt toward outsiders, but neither is there much in the way of sympathy or understanding.

In one way this explains why the inhabitants did not openly contest the invasion by Oppenheimer. As long as their daily routine of life was not altered beyond recognition, it mattered little whether this world's rulers were found in Garsiel or on a planet in another star system. As long as the Trinitants continued to have a say in their own affairs—a situation that the invaders intended to ensure—the majority would remain generally complacent.

With the world's political power held by a captive government, it is safe to say that cultural (as well as technological) progress on Far Trinity will begin to advance at a somewhat faster rate than before. However, the newcomers from Oppenheimer will be faced with the same passive resistance that enabled their successful conquest; few forces in the universe are more difficult to overcome than inertia.

TECHNOLOGICAL PROFILE

The technology found on Far Trinity has been influenced a great deal by the ruling government on Oppenheimer. For example, the Trinitants were still using petrochemical fuels and had just developed radio when the invasion tool place. Over the next three decades, advisors made a wide range of technological improvements available, most of which have seen painstakingly slow acceptance. However, it was intended that there would be no new advances in mass communications, just in case any efforts were made to unify the populace against their captors. (These concerns would later be proven unjustified.)

Therefore, widespread distribution of anti-Oppenheimer media broadcasts was seen as among the greatest threats the captors could face and so little assistance was provided in this area (television is still science fiction on current-day Far Trinity). Likewise, technology in the field of personal weaponry has not been improved, though some information on medium-tech heavy weaponry was carefully parceled out so that factories on Far Trinity could begin producing goods for interstellar export.

Water transportation lags slightly behind the average, due to the unfavorable conditions for overseas transport on the planet. To compensate, a fairly advanced air transportation system is now in place, with several small supersonic airlines operating between the major cities.

Space transportation is one area that the Hoppies are keeping pretty much to themselves, however. They have no intention of seeing their subjects exploring throughout the Otero star system, and then beyond, without very close monitoring. Fortunately, most Trinitants have equally little interest in leaving their own world.

One area where Far Trinity is as advanced as much of the Imperium is in its taste for unusual trade goods. Novelties introduced by Oppenheimer trade officials, visiting soldiers on garrison duty, and others passing through have been a big hit with the Trinitants. This in itself is not surprising, since most luxury goods were simply unknown until recently, and they are now seen as valuable diversions.

GOVERNMENT

The leading governmental authority on Far Trinity is its legislative branch, a group of 19 men and women known as the "Makers of Rules." Elected to single six-year terms by the Assembly, they meet in open session for three to seven months each year, to formulate and pass any new laws they consider necessary. The Makers of Rules also have the ability to repeal laws that have not been enforced a single time anywhere during the last three local years. This power ensures that the minimum number of useful laws are preserved in the statutes. This also means some actions that might have been illegal once may no longer be so.

The executive branch of the government consists of every sane, native born Trinitant 17 years old or older. Collectively, these citizens are known as the "Assembly." They vote for the Makers of Rules and Magistrates, and they enforce the laws. Far Trinity has no organized police force to speak of, with every individual legally entitled—and obligated—to arrest any offending party. The accuser and accused then face a Magistrate who hears both sides of the case and makes a ruling.

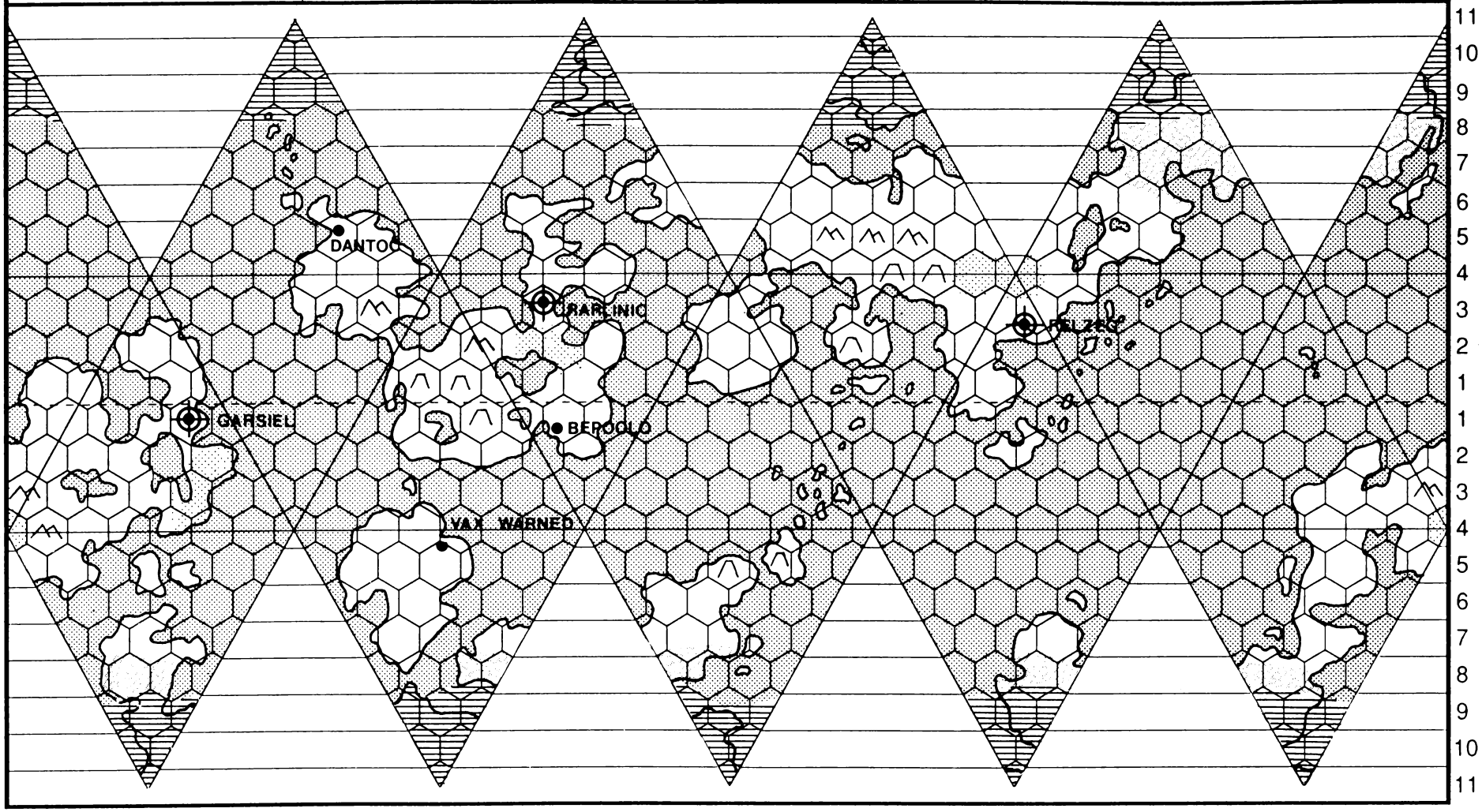
The Judicial branch of government is administered through a series of Magistrates. Magistrates determine the outcome of civil and criminal actions, verify the sanity of individual Assembly members (insane persons are disqualified from the Assembly), and make unbinding comments on relevant social issues. If a lesser Magistrate feels unqualified to make an objective decision, the matter may be referred to a higher Magistrate. A single Magistrate Prime, elected by the Assembly to a single 27-year term, is the sole arbiter and highest judicial authority on Far Trinity.

The government of Far Trinity, as described above, remains essentially unchanged from before the conquest by Oppenheimer. In general, the Hoppies have as little interest in their colony's domestic affairs as Far Trinity has for interstellar domination. However, all legislative actions and many higher magisterial decisions are critically reviewed by one or more representatives from Oppenheimer. In the vast majority of cases, no comment is made and the Trinitants are not even aware they are being monitored. On the rare occasion when a conflict does occur, the Magistrate Prime or Makers of Rules are contacted and "advised" to overturn the previous action.

WORLD MAP GRID

This geodesic map grid divides the spherical surface of any globe into twenty triangles, each of which is further divided into hexagons. Note terrain identities and other planetographic features of the world in these hexagons. Total number of map hexes per triangle: 25. Total number of map hexes: 500

1. Date of Preparation	2. World Name *(and UPP)*	3. Hexagon Scale in Kilometers (circumference divided by 35)	4. Subsector and Sector Location of World
1117	Far Trinity D767617	1032 km	Shiwonee / Massilia 1025



IS Form 21

World Map Grid (Large)

Map Terrain Key

Mountains	Water	City circa 90K	Ice
Volcanoes	Desert	City w/ Starport circa 90K	Clear
Tundra			

PLANETARY LAWS AND ENFORCEMENT

The overall law level on Far Trinity is incredibly low; this is due in great part to the uniformity of law and the success of the Assembly in effectively enforcing the few regulations that do exist. Everyone is equal in the eyes or Trinitants and no one receives special immunity from legal enforcement; if the Magistrate Prime should be caught violating a law, he will receive the same treatment as anyone else. In general, criminal and civil laws are rare, and are mostly reserved for major offenses such as murder. Personal freedoms are almost limitless, as long as the parties involved do not inflict permanent damage on each other.

One common and relatively harmless way to punish minor offenses involves taking the guilty party into a large city and exposing him to public humiliation in various ways, such as describing embarrassing things about him or his past. As personal pride runs deeply through the average Trinitant, few persons endure more than a single exposure.

Laws regarding trade and weapons are somewhat more restrictive, mostly due to the Oppenheimer government. It is especially important to observe trade restrictions involving technology, as these ordinances are the most closely enforced. Importing any goods (except pre-approved luxury goods) reflecting a technological level of 8 or greater is a punishable offense, which may result in the confiscation of any personal belongings, valuables, and/or vessels involved. Importing any weapons of tech level 5 or higher falls under the same law. Repeated violations may result in a brief trip across the system to the penal colony on Oscuro. (Authorized agents of the Oppenheimer government are, or course, exempt. These statutes are specifically intended to discourage outside traders and speculators.)

Based on Imperial records and scout reports, Far Trinity is classifiable as a non-industrial, rich, agricultural world.

SYSTEM REGULATIONS

Because Far Trinity is subject to a captive government, it is important to follow the laws of the ruling regime. The single most vital regulation for starship captains to abide by is this: all non-Imperial starships must first travel to the Oppenheimer system and obtain permission—in person, on every occasion and without exception—before jumping into the Otero system. (This regulation only applies upon entrance; vessels may jump from Far Trinity to any destination of their choice.) Also during this process, special luxury goods destined for Far Trinity may be examined and approved, or held on Oppenheimer until the trade ship returns.

Scout ships on detached duty are considered to be Imperial vessels for this purpose, and thus are not required to check in through Oppenheimer first. (It is strongly recommended, however, especially if any trading is anticipated.) Vessels that have not been cleared through Oppenheimer are treated as pirate vessels and fired upon by any in-system patrol craft.

RELIGION

The inhabitants of Far Trinity have never had a uniformly popular religion. Most citizens are pragmatic and bear a healthy agnostic skepticism toward something as intangible as a religious belief. (Their philosophical beliefs are equally underdeveloped.)

However, approximately 60 "converters," religious missionaries belonging to the "Blue Faith of 11,000 Suns," have come to Far Trinity within the last two years. Their probable objective is to convert as many Trinitants as possible to their beliefs. This task may be several decades or even centuries in the making.

THE BLUE FAITH OF 11,000 SUNS

This religion, claiming 287 million adherents throughout the Imperium, is often described as a religion shrouded in mystery and ritual. In particular, great symbolic meaning is derived from multiples of 11 and 100. The formal relationship between the Third Imperium and the church is unclear, though some have said the late Emperor Strephon may himself have been a secret sympathizer (if not a full-fledged follower). The name of the religion and the fact that there approximately 11,000 star systems in the Imperium is not seen as coincidence.

The fundamental basis is a rational polytheism, as each of 11,000 gods represent one facet or aspect of a single true divinity. Reincarnation is an accepted principle, in which proper behavior and correct living will be rewarded by a more elevated, spiritually-inspired life in future incarnations. Formal devotions take place every morning just before local sunrise, and brief periods (usually less than 30 seconds each) are reserved from each waking hour for devotional thought.

The rite of passage is very important, especially for female followers. All women must attend a ceremony at the nearest temple upon reaching their 22nd birthday to "declare their womanhood." It is the duty of the woman's mother or a duly appointed "escort of honor" to ensure that the celebrant reaches her destination for this ritualistic event.

The ruling hierarchy is theocratic, but fewer than a half-dozen worlds are under this religion's direct control. More frequently, select nations or regions of a world will come under its authority. The holy writings containing all the doctrines and the religious significance of each of the 11,000 gods is reputedly stored somewhere in Core Sector. However, their exact location and availability is limited to the most senior priests and prefects; followers are only told that the documents do in fact exist. The Blue Faith of 11,000 Suns is comprised of humans only, as its followers believe no other sophont race is capable of being reincarnated.

OPPENHEIMER — AN OVERVIEW

Oppenheimer (0826-B554400-D) is a smallish, water-poor, low-population world, classified as an Amber Zone by the TAS because of its almost non-existent law level. With a high common technological level of 13 and a total planetary population of just over 48,000, Oppenheimer sought a low-tech world with a large labor force, available for mass-producing goods at low cost. Far Trinity seemed the logical choice. Though the quantity of goods produced on Far Trinity is nothing compared to those made on an industrial world, they are far greater than anything Oppenheimer could manage alone.

The families that rule Oppenheimer are not truly despotic;

however, their single strongest motivation is greed. As a result, great care is put into ensuring the highest workmanship for products manufactured on Far Trinity, to guarantee future repeat sales. While the ruling families tend to be a little on the cutthroat side, they never take out their actions on their captive colony, in fear that their "workers" may unite to move against them. Having a technological advantage just might not be enough in a true confrontation, with the odds so overwhelmingly against them. Limitations on certain technologies and regulations on trade goods are all designed to keep Oppenheimer as a buffer between Far Trinity and the rest of the Imperium. To date, it has worked.

ADVENTURING IN THE FAR TRINITY SYSTEM

STARSHIP ENCOUNTERS

This encounter table is specifically designed for the Far Trinity system. Ships may be on a variety of missions, see the **MegaTraveller** ship missions table. If the encounter takes place in an outer orbit (e.g., near the gas giant), apply a DM+ 3.

Die	*Ship/Small Craft Encounter.*
2	IISS *Donosev* Class Survey Scout (type SZ).
3	1-3: *Gazelle* Class Close Escort (type CE). 4-6: Safari Ship (type K).
4	Subsidized Liner (type M).
5	Scout/Courier (type S).
6	Scout/Courier (type S).
7	1: Launch. 2-4: Ship's Boat. 5: Pinnace. 6: Shuttle.
8	1-3: Laboratory Ship (type I). 4-6: Corsair (type P).
9	1-3: Far Trader (type A2). 4-6: Seeker (type J).
10	Distress call: roll again for specific ship.
11	Mercenary Cruiser (type C).
12	Patrol Cruiser (type T).

RUMORS

The referee may elect to use some or all of these rumors during the course of play. They may be used in any sequence.

1. Agents of the Oppenheimer government are actively seeking skilled prospectors for one-year contracts. (Recommendation to action).

2. Some of the workers at a mechanical parts plant in Dantoc are tired of "slaving" for Oppenheimer, and are planning some sort of revolt. (Partially true, but misleading fact).

3. Anyone who could successfully smuggle in high tech weapons could receive five times the normal rate for any quantity. (Obviously true, but extremely hazardous fact).

4. Emperor Strephon was not assassinated; instead he has been kidnapped by his political enemies and is now being held at the penal colony on Oscuro. (Completely false).

5. Oppenheimer has cut back on patrols around the gas giant Almira because they have gotten too expensive for what they are worth. (Misleading fact).

6. A building in Bepoolo, leased by the Blue Faith of 11,000 Suns, was burned to the ground. There are no leads yet. (Minor fact).

7. Someone claims a new site of radioactives has been detected along a diverging tectonic plate boundary. (Major fact).

8. There has been talk of putting an Imperial Xboat route through the Otero system. No one is sure what effect this might have on Oppenheimer's control over the system. (Completely false).

9. A bank official claims to have seen a peculiar aircraft. Based on his description, the vehicle in question was a conventional air/raft, the likes of which should not be found on this world (a violation of Oppenheimer's technology limit). (Major fact).

10. An accident at Rarlinic has closed the spaceport there indefinitely. (Minor fact).

11. According to a radio broadcast, Far Trinity's production of machine parts is up 13% over the same period last year. (Minor fact).

12. An Oppenheimer industrialist is seeking volunteers to test-pilot a submarine to operate in Far Trinity's oceans. (Recommendation to action).

13. Four passengers will barter in goods for the equivalent of middle passage off-world. One is extremely ill with radiation poisoning. (Recommendation to action).

14. Two members of the 19-person "Makers of Rules" council have resigned. Questions have been raised about their accepting payments for personal endorsements, a minor offense. (Minor fact).

15. Citizens are being encouraged to move out of Relzeg; otherwise, its population may exceed the legal limit. (Minor fact).

STAR SYSTEM DATA

Name/Location: Far Trinity/Shiwonee/Massilia 1025

Orbit	*Name*	*UWP*	*Remarks*
Primary	Otero	F4 V	magnitude 3.22
0	empty orbit		
1	Sierra	YS00000-0	
2	Socorro	companion	
3.1	Lea	Y560000-0	
*4	Far Trinity	D767661-7	
9	Tularosa	Y666163-6	Sc Scout Base
41	Oscuro	F220564-6	Penal Colony
4.8	Artesia	H200262-6	
9	La Huerta	YS00162-6	
11	Malaga	YS00000-0	
6	empty orbit		
7	Almira	Small GG	
38	Quincy	Y230000-0	
173	Odessa	Y100000-0	
Companion	Socorro	M4 sub-dwarf	
0	McNary	YS00000-0	
1	Morenci	YS00162-6	

World Name: Far Trinity
Location: Massilia Sector 1025
UPP: D7676617

Physical Data:

Diameter: 11,503 km
Density: 1.02 standard
Mass: 0.727 standard
Surface Gravity: 0.91 g
Rotation Period: 25 hrs, 8 min, 8 sec.
Orbital Period: 629.26 standard days
Seasons: Summer, Winter (151 days each), Spring, Fall (163.5 days each)
Axial Tilt: 20d 12' 1.7"
Orbital Eccentricity: 0.020

Satellites: Tularosa (9 radii, Y666163-6)
Oscuro (41 radii, F220564-6)

Surface Atm Pressure: 1.00 standard atm
Atm Composition: Standard nitrogen-oxygen mix
Atm Terraforming: No
Hyd Percentage: 68%
Hyd Composition: Water
Hyd Terraforming: No

Temperature:

Base Surface Temp: 11.2°C
Axial Tilt Modifiers: +12.0°C, -21.0°C
Rotation Modifiers: +6.25°C, -12.5°C
Latitude Modifiers: 6.5°C per hex row
Orbital Eccentricity: +0.6°C, -0.6°C
Other Modifiers: None
Weather Control: No
Grnhouse Terraforming: No
Albedo Terraforming: No

Mapping Data:

Nbr Tectonic Plates: 3 (covering 54%, 45%, 1%)
Native Life: No
Terrain Terraforming: No
Major Continents: 3
Minor Continents: 4 (6 major islands, 2 archipelagoes)
Major Oceans: World
Minor Oceans: World

Seismic Data:

Stress Factor: 18
Notable Volcanoes: 32 active (on all continents)

Resources:

Natural Resources: Agricultural, Radioactives
Processed Resources: Agricultural, Alloys, Agroproducts
Manufactured Products: Weapons, Mechanical Parts, Electronics, Gravitics

Population & Ports:

World Population: 6,388,000
Primary Cities: Garsiel; 90,700; class D
Rarlinic; 91,900; class H
Relzeg; 96,800; class H
Dantoc; 95,300;
Vax Warned; 96,300;
Bepoolo; 90,600;
66 other cities, circa 50,000;
Secondary Cities: 312 cities; circa 5,000;
Tertiary Cities: 840 cities; circa 500;

***GRAND CENSUS* CULTURAL PROFILE**

World Name: Far Trinity
Location: Massilia Sector 1025
UPP: D767661-7

Cultural Profile:

Progressiveness-Att: Reactionary
Progressiveness-Act: Indifferent
Aggressiveness-Att: Passive
Aggressiveness-Act: Peaceable
Global Extent: Harmonious
Interstellar Extent: Aloof

Technology Profile:

High Common: 7
Low Common: 7
Energy: 7
Computers/Robotics: 7
Communications: 5
Medical: 7
Environment: 7
Land Transport: 7
Water Transport: 6
Air Transport: 8
Space Transport: 6
Personal Weapons: 4
Heavy Weapons: 8
Novelty: D

Government Division of Authority:

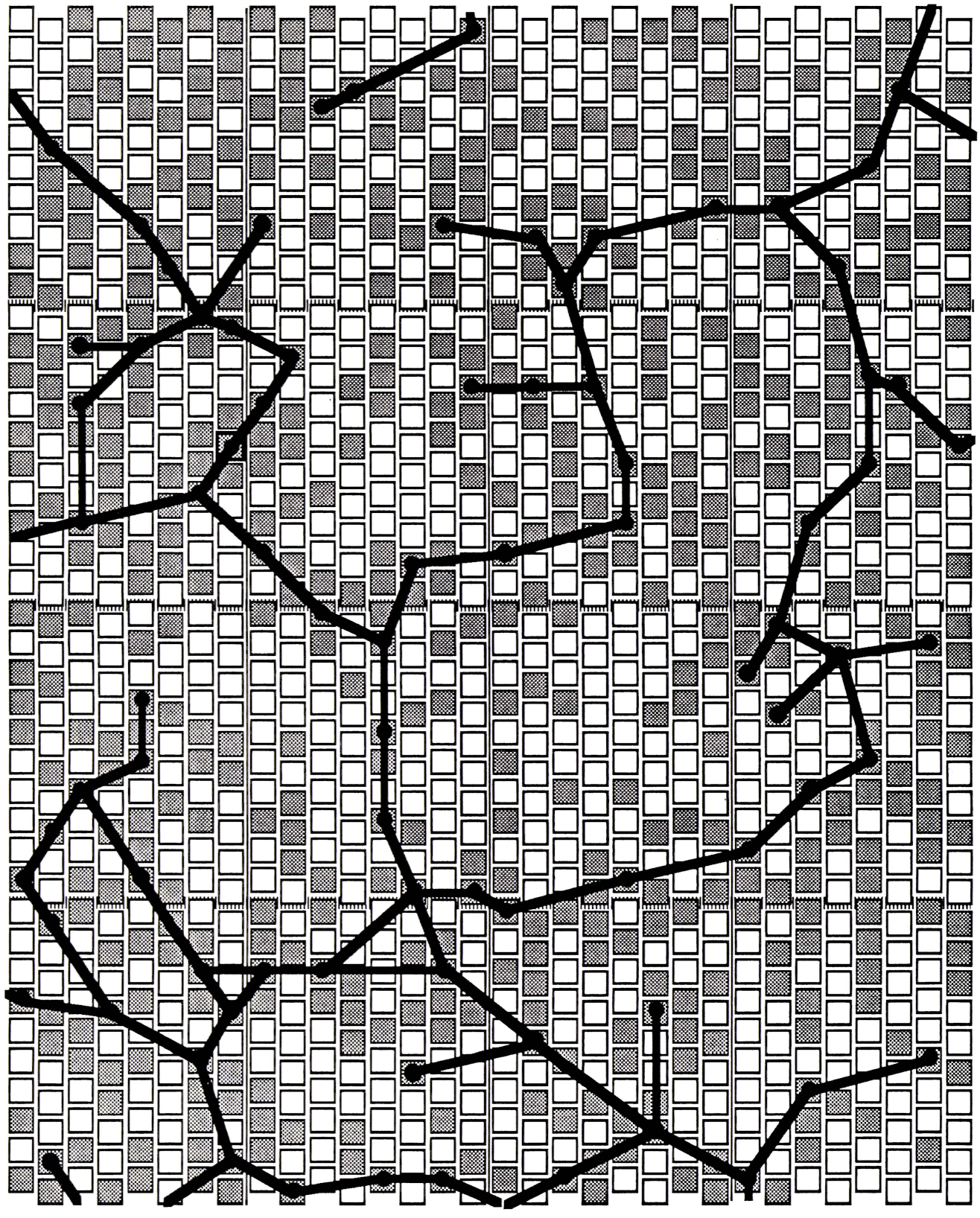
Represent. Authority: Legislative (Elite Council)
Other Authorities: Executive (Demos), Judicial (Ruler)

Law Level:

Overall: 1
Weapons: 3
Trade: 5
Criminal Law: 1
Civil Law: 1
Personal Freedom: 1
Uniformity: Undivided

Religious Profile:

God View: 3
Spiritual Aim: 3
Devotion Required: 2
Organization: 0
Lit Formality: 1
Mission Fervor: 5
Nbr Adherents: 1



Xboat Routes of Massilia Sector

Massilia Sector

LIBRARY DATA OF THE SECTOR

—by Nancy Parker and Robert Parker

Arrilla/Keum (0112 E-585448-6): Visitors to Arrillia often report that the Arrillans are too easy-going, making them a joy to visit, but frustrating as business partners. Their planet is a kindly one, with equable temperatures over much of its surface and plentiful resources. As a result, its people feel little urgency about acquiring more goods to make life comfortable, and they are quite satisfied at their low tech level. The mountains of the large continent contain rich deposits of minerals and crystals, but few natives can be stirred to mine them out for trade. Foreign investment would be possible, but one would need to import workers as well as equipment: local labor tends to take holidays whenever the mood strikes. All told, the planet is a tourist's delight, often recommended by doctors for the cure of stress-related ailments.

Kerr	Arar	Khisham	Zalucha
Keum	Vaait	Forquee	Palasha
Ten Suns	Shiwo-nee	Nes'Vra	Tooka
Annari	Shokee	Shimmer	Oreo

Massilia: Subsector Key

Avnira Tree: The avnira tree originated in the Arilla system. It was first transplanted in 689 to Jokkat. Since then it has been gradually spread through the Kenum and Vaait subsectors in Massilia.

The chief reasons for the Avnira's popularity are its great beauty and the ease with which it is transported and transplanted.

The Avnira has a dark, almost purple color with a beautiful flame in its grain. When treated with certain varnishes, the first 2-3 millimeters become translucent to transparent, giving a depth and dimension to its appearance unsurpassed in this area of the Imperium. After the wood has been exposed to a bright light, it continues to glow intensely for about 2 hours after the original light source is removed.

To transplant a new tree, simply cut a live branch from the tree and freeze it. It will last up to 15 weeks in this state and may be transported anywhere while in this state. To revive and complete the transplant, the branch should be placed in water at around 40°C for 12 hours, and then planted no more than 10 cm deep. The tree usually takes about 15 standard years to reach a harvestable size, but can have cuttings taken from it after as little as three years.

Dezik/Ten Suns (0228 A-9C8333-F): A cold, sub-gas-giant circling a small star. Despite its hydrogen atmosphere, it has a water hydrosphere which is frozen on top and kept liquid underneath by the planet's own heat. This star system is judged to be a very young one and planets are still contracting and sweeping up asteroidal debris.

This unparalleled opportunity to study the processes of planet formation brought the original scientific colony to Dezik. It has since grown to about 2,500 sophonts from several cooperating races. The scientists remain in charge of the colony, although many of the inhabitants are now engaged in life-support services and other businesses.

Gasha/Arar (1508 A-250510-G): This cold desert planet is the location of the Yamashi Research Institute. The Institute colonized here in 453 to study the Ilraiki race and its evolutionary adaptation to this planet as it grew colder. The climatic change was caused by an increase in its orbital diameter due to the near passage of another star.

Astronomical calculations place the star RS-6732C-5f only one half light year from Gasha's primary approximately 150,000 years ago. This close passage disturbed the course of both suns and their attendant planets to such an extent that the systems are proving a valuable laboratory in the study of adaptive evolution.

Hunberri/Annari (0339 B-884622-A): The people of Hunberri are famous for their honesty and their stubbornness. It is an unbearable disgrace for a Hunberrin to be found a liar or a cheat, and total ostracism is the least punishment society will deal out to offenders. However, the desire to fight and the desire to be right seem to have gotten mixed.

A Hunberrin will not admit to being wrong when he has expressed an opinion, nor will he say he cannot do a job that he has consented to take on, regardless of circumstances. This has made business collaborations with offworlders trying at times.

The drive behind native behavior seems to be more to avoid ridicule than to act for one's own pleasure. Curiosity and inventiveness are below average and technological progress has been slow and largely imitative of outside work. This does not imply poor technical skill, for Hunberri has a 100% literacy rate and excellent technical schools. Art is based on ideals of restraint and balance, as is philosophy and personal life.

Kaflowe/Keum (0514 D-465545-8): First Imperium records indicate that early migratory colonists were the first to travel to this world. They found a local ecology that was almost totally incompatible with human life.

The migrants were ill-prepared to cope with this, since most of the pre-colonization surveys had been orbital. Only one biological group was found to be edible, a symbiotic triad of bird, rodent, and plant. Until plants from the migrant's homeworld could be coaxed to grow, this triad was the sole source of food and had to be husbanded with extreme care. Thus this special triad assumed a significance all out of proportion to its ecological niche.

Today's attitude toward the triad is little short of mystical adoration, though the food problem has long since been solved. The grilin bird is protected and encouraged to multiply by the planting of the siccradit tree. The mikat rodent is also allowed to run free, despite its taste for certain human crops.

A religion has grown up around the concept of the symbiotic triad in the past 400 years. Its central tenets enjoin cooperation and harmonious living, so the theology has a more or less calming influence on the culture.

Ostu: The ostu is a large herd animal from Yiiman (Massilia 0321). Attempts are being made to extend the planetary range of this animal because of its excellent food

possibilities. It also has a tough but workable hide that can be used for leather on lower tech worlds that lack indigenous animals that are usable in such manner.

So far, results of the transplant experiments have been poor, but the Imperial scientists are continuing to evaluate the results to try to improve them as a good deal of evidence exists that the First Imperium had a similar, successful program.

Rebin Empire (0212, 0213, 0214, 0312, 0314, 0315): A pocket empire long since reabsorbed into the Imperium, but maintaining a distinctive local culture. Rebin (0312 A-88A436-F) is the homeworld of a highly technological, matriarchal culture that settled the inhospitable systems around it self in the latter part of the Long Night.

The powerful matriarchy of Rebin dates as far back as any historical records exist. Males constitute a servant class and do not marry into permanent families. Children are raised and educated by female governesses, until age 8 when the boys go to men's barracks to be trained for their future duties. Science, art, and administration are entirely in the hands of women. Men are not literate beyond the most basic needs of laborers.

Three of the five colony worlds have vacuum environments, with populations under domes and underground. (0212 B-200967-F; 0314 A-20099B-G; 0315 C-10059C-C) The fourth world has an ellipsoid atmosphere, breathable only in the colder latitudes, and the fifth requires filter masks. Despite these harsh conditions, the colony worlds hold the bulk of the "empire's" population, while the pleasant homeworld is artificially restricted to the estates of ruling nobles and their servants.

Most of the Rebin worlds have notably high law levels because of the necessity of controlling such a large subjugated part of the populace. Male traders and visitors find the matriarchs difficult to deal with, so most firms send female representatives to do business.

Technology, Massilia Sector: Massilia is an old and well-established sector with a heavy Terran influence in its cultures. Technological progress has been rapid on most planets, and regression to pre-industrial levels is nonexistent. Twenty-four worlds scattered evenly through the sector are at tech level 16. Thus, virtually any world can trade for highly advanced items such as the first artificially intelligent robots, global terraforming equipment, pocket holovideo recorders, or neural stun weapons. These last are becoming favorite police weapons on high-tech worlds, since they allow capture without injury and can be safely used even in hostage situations.

Some of these items are terribly expensive, but this is no deterrent to large shipping corporations cutting deals. Buyers elsewhere will pay even higher prices for the best merchandise.

Udipenl/Forquee (2316 B-687ACA-E): This world, though beautiful and varied, would not have its present volume of traffic and tourism were it not for the Ilodav Music Festival. Performers and performing groups come from all over the Imperium to study and perform here.

Hallow's performance facilities are superb, and the Meinel Conservatory has a library of music that many claim is unequaled within the Imperium. Here you can find and hear compositions ranging from the ancient Kilatis' of Baarid Garuud and the Ciaconas and Fugues of Dietrich Buxtehude to the most modern compositions of Bran Ralu, Eafeahkhail Eeskha, and Robin Garcia. There are even occasional performances of the music and dram of Droyne, Hiver, Vargr, and non-Imperial Aslan cultures.

Zulanir: The zulanir is a flightless bird, found on Granporr (Massilia 3035), that is much prized for the oil that can be processed from its flesh. Researchers have recently found that zulanir oil also contains certain enzymes and hormones critical to the manufacture of anagathic medications. Fortunately, the hunting of these birds has not yet seriously depleted their numbers, as they are extremely prolific.

However, efforts are being made to settle the birds on other planets in locations similar to their natural habitat on Granporr.•

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Project Blackheart

—by Chad Russell

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Project BLACKHEART Summary Report

Commence Date: 236-1110
Completion Date: Ongoing
Current Date: 181-1116
Status: Operational

Authorization: Grand Admiral of the Imperial Navy Directive 113854, pursuant to Imperial Edict 97 ("Imperial Warrants") and Imperial Edict 129 ("Strategic Defense of the Spinward Marches against the Zhodani Consulate and Outworld Coalition")

Administration: Imperial Naval Attache, Office of the Duke of Regina, Regina Naval Base, Regina/Regina/Spinward Marches

As the Fifth Frontier War drew to a close, it was observed that the Imperial "reserve" strategy had demonstrated significant strategic merit over the old "crust" strategy it had replaced, just as Naval Intelligence had predicted.

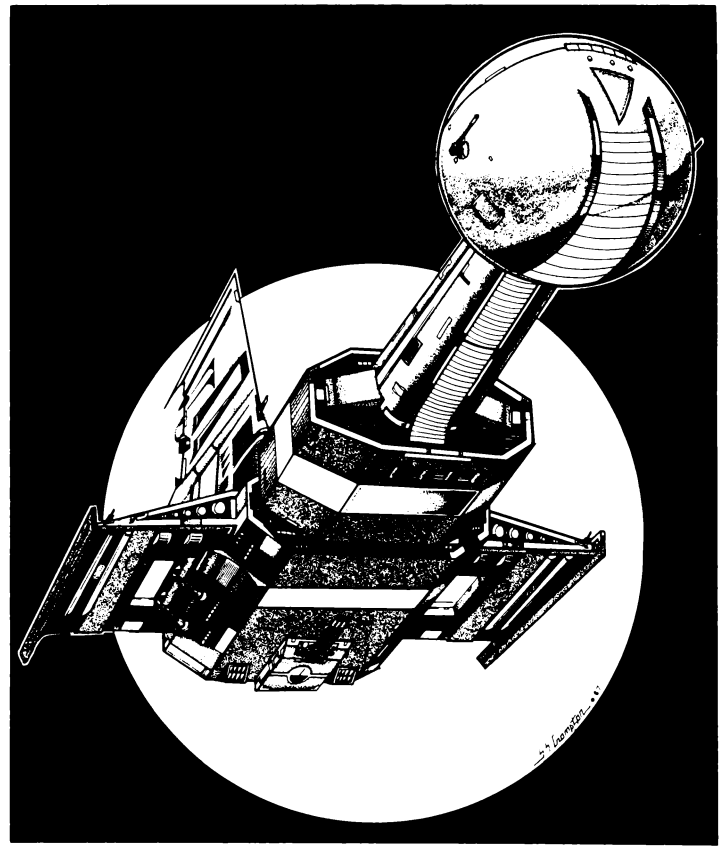
A crucial defensive strategic maneuver of the war was the successful continuous disruption of the Zhodani supply line through Louzy/Jewell/Spinward Marches.

Because the Zhodani Navy was composed primarily of jump-3 vessels, preventing the establishment of a secure planethead in the Louzy system had a fundamental effect on the entire Zhodani war effort. The crucial nature of the Louzy system had been theorized in strategic simulation.

Good contingency planning resulted in the Louzy SDB commander's provision with explicit advance orders for dispersal and raiding, rather than the stoic "sacrifice defense" the Zhodani had apparently expected.

THE ZHODANI TECHNOLOGICAL THREAT

The Zhodani Consulate, a technologically advancing culture, can be expected to reach our own highest level of technology throughout its area before the turn of the next century. Therefore, a subsequent upgrade of fleet capabilities to jump-4 (with tenders and scouts in the jump-5 range) can be expected prior to any future aggression against the Imperium.



NI studies indicate that jump-4 battleships and jump-5 fleet tenders represent an optimized force projection configuration, given current or foreseeable military technology.

Combined, these factors pose a growing and inevitable threat to the strategic security of the Spinward Marches, and prudence mandates the implementation of IN programs to counter such threat.

IMPERIAL COUNTERMEASURES

To date, the Imperium maintains one subtle technological advantage over any other technologically-aspiring rival: the salvage and construction of force field generators, colloquially known as "black globes". This proprietary technology is probably the most closely guarded of all Imperial military secrets.

Recent military studies have resulted in a particular strategic application for which this device is uniquely suited. On 236-1110, a special project was initiated by secret order of the Admiral of the Imperial Navy: design, implement, and maintain a defense force intended to exploit the tactical advantages of force field-equipped vessels on a strategic scale.

For security and expediency, the project would be "forward administered" under the authority of His Grace, Duke Norris of Regina, acting Sector Admiral during the later months of the war effort by virtue of Imperial Warrant.

Due to the important strategic location of the Regina system, it was decided to permanently assign Project BLACKHEART to the Imperial Naval Attache in the Duke's Office on Regina.

Although project operations would be conducted through the normal IN structure, the administrative oversight would be a responsibility of the Office of the Duke directly to the Grand Admiral of the Imperial Navy. No intermediate members of the IN command hierarchy are involved.

NEMESIS CLASS INTRUDER CRUISER

The resulting design is the *Nemesis* Class intruder cruiser. This 19,900-ton ship is designed for maximum strategic utility and cost-effectiveness. The factor-T spinal mount PAW is primarily intended for employment against enemy fleet tenders in an effort to immobilize large portions of the enemy's attack strength.

The T-PAW weapon has also demonstrated effectiveness against lightly armored cruisers and small- to mid-sized battleriders. The high accuracy of the PAW system, when compared to meson guns of similar factor, along with the meson gun's lack of penetration against dispersed structure hulls or meson screens, make the T-PAW the "one shot, one kill" weapon of choice in this application.

The size K hull was chosen to give a densitometer signature approximating that of the newly commissioned *Tenacious* Class missile frigates. This also allows for easy duplication and procurement of spares or replacements for most secondary ship systems through the existing maintenance budgets for the frigate program. To save on costs, the ships carry a manufactured force field of only factor-1, since "flickering" is not called for by the primary mission profile.

The *Nemesis* Class ships are not outfitted with secondary weaponry, as they are intended only for surprise engagements, and will never travel unescorted through normal spacelanes. This lack also serves to prove the special-purpose defensive nature of the ship.

Emphasizing the defensive rather than offensive nature of the ship helps avoid a diplomatic crisis should the vessels' existence becomes known to the Zhodani prior to the outbreak of hostilities on their part.

Particularly noteworthy items are the high jump rating (jump-5 on nominal internal fuel), and the additional fuel storage provided in the collapsing tank assembly.

Mission flexibility is assured with the extensive stores capacity, easily convertible to auxiliary fuel storage. The vessel can remain actively on station for long periods of time, and can also make two consecutive jump-3 trips within a fortnight on full internal fuel. This allows the ship to conduct "jump-3 standoff" raids on systems occupied by the enemy.

MISSION PROFILE

The typical mission profile calls for the vessel to jump into a system where hostile forces are present with its factor-1 force field at 100% opacity, and on a predetermined ballistic course (usually a hyperbolic orbit around the main world or gas giant). At a time predetermined by computer projections of enemy tactical deployment, and as the intruder approaches estimated minimum jump altitude, the *Nemesis* cruiser begins charging the lanthanum prejump coils in preparation for a jump departure.

After about twenty minutes of charging, the cruiser suddenly shuts off the force field and engages any enemy targets of opportunity present. Such ships will usually be at far range, and will generally not be able to bring more than "defensive fire" batteries to bear, if anything at all. After the salvo, and presumably once the enemy fleet has been alerted to the intruder cruiser's presence, the hull jump network is energized, allowing the *Nemesis* cruiser to jump from the system before the enemy fleet can engage it.

If necessary, the intruder's agility-1 can be sacrificed to provide additional jump-charge energy to allow a jump-4 retreat after a jump-2 advance. Simply turning the force field back on at 100% and allowing incoming fire to provide the energy for the escape jump is ill-advised, but a possible emergency contingency.

Powerplant fuel is sacrificed in such raiding applications, reducing the ship's endurance to the point at which an immediate refueling operation is necessary upon completion of the second jump. Obviously, an extensive knowledge of fleet tactics is required in order for the captain of a *Nemesis* cruiser to effectively estimate the locations of enemy fleet elements in advance.

Any tactical intelligence that can be provided prior to the insystem jump, or to the intruder once it arrives insystem, would enhance the likelihood of effectively encountering and surprising high-value enemy targets. It is hoped that sufficient proficiency at estimating likely enemy orbits will make "scheduled runs" unnecessary, at least initially.

If the locals were to detect a pattern to the incursions, the risk of the *Nemesis* runs increases greatly. In addition, the enemy can be expected to eventually adopt a randomness in course and orbit vectors, in an attempt to outguess the *Nemesis* intruders.

CURRENT DEPLOYMENT

Currently, the *Nemesis* Class ships have been deployed in deep space, berthed to stockpiles of life support supplies and large (100,000 tons or more) caches of unrefined fuel. The number of *Nemesis* hulls constructed, their dispositions, and the identities of their command crews are documented elsewhere, in a separate file which is not cross-referenced to this one, for security purposes.

Most of the *Nemesis* cruisers currently on-station are "mothballed" in accordance with standard IN guidelines, with one notable exception: their security monitoring systems are triggered to detonate demolitions charges and destroy the force field generators in the event of tampering or unauthorized entry of the vessels.

The crews of the *Nemesis* ships have already been picked, and in the event of the ships' mobilization, they will be ferried to the secret deep space station points, be briefed about the cruisers' existence and mission while enroute, and then conduct accelerated recommissioning operations once they reach the "sleeping" ships.

PROJECT SECURITY

Those individuals directly concerned with the daily administration of Project BLACKHEART are NI personnel trained as psionic telepaths at secret Imperial military facilities.

It is generally felt that telepathic or clairvoyant Zhodani

intelligence agents could eventually discover the existence of Project BLACKHEART, so as much of the information and details as possible are handled by reliable robotic systems. The combination of secure cybernetic systems and personnel with natural telepathic shield should hamper Zhodani intelligence enough to avoid compromising the effectiveness of the project.

Nonetheless, for legal and administrative considerations, it is necessary that some non-encoded records be kept. Perusal of this, or any other document associated with Project BLACKHEART, even by authorized personnel, results in an automatic classification as an NI security risk (except for NI personnel who are telepaths with HS Clearance and NTK) and institution of appropriate surveillance measures.

Exhibiting knowledge of the details of, or even the existence of, Project BLACKHEART to unauthorized personnel is a high crime under Imperial law.

Nemesis Class Intruder cruisers, *High Guard* Stats:

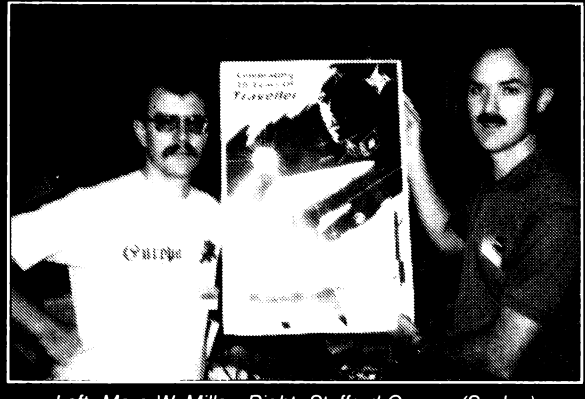
Nemesis CJ-K6517J3-000010-00T00-0
batt 1
bear 1
TL:15. 19900 tons standard. Agility 1. 11343 integral fuel, with purification (171 tons) and skimmers.
138 crew, including 19 troops and 5 flight crew.
1434 cargo (1434 ton collapsible tank installed as built).
2 shuttles, each w/3 missile. one w/70 cargo, one with 140 passengers. One launch facility.
BCR 10.156217 in quantity (including fee and discount), with tanks and craft.

MegaTraveller craft profile (UCP):

Intruder Cruiser, Nemisis Class

CraftID: Intruder Cruiser, Type CJ, TL 15, MCr9,416.51
Hull: 17910/44775, Disp=19900, Config=4SL, Armor=40G, Unloaded=183,960tons, Loaded=211,230tons
Power: 1233/2466, Fusion=333000Mw, Duration=8/24
Loco: 360/720, Maneuver=1, 1080/2160, Jump=1, NOE=190kph, Cruise=900kph, Top=1200kph, Agility=1
Commo: Radio=Systemx2, LaserCom=Systemx2
Sensors: EMMask, PassiveEMS=Interstellar, ActiveEMS=FarOrbit, Densitometer=High, Neutrino=10kw,ActObjScan=Rout, ActObjPin=Rout,PasObjScan=Rout, PasObjpin=Rout, PasEngScan=Rout, PasEngPin=Simp
Off/Def: HardPoints=199, DefDM=+9
Control: Computer=9bisx3, Panel=holographic linkx6175, Special=large Holodisplayx3, Environ=basic env, basic ls, extend ls, grav plates, inertial comp
Accomm: Crew=164 (Bridge=11, Engineering=24, Maintenance=3, Gunnery=53, Flight=5, Ships Troops=19, Command=39, Stewards=6, Medical=4), Staterooms=13, LowBerths=13, SubCraft=Shuttlex2
Other: Cargo=19360kliters, Fuel=112970kliters, PurificationPlant, Scoops, CollapsibleTanks=19360kliters (in cargo hold), ObjSize=Large, EMLevel=Moderate

10 Years of Traveller



Left: Marc W. Miller; Right: Stafford Greene (Seeker)

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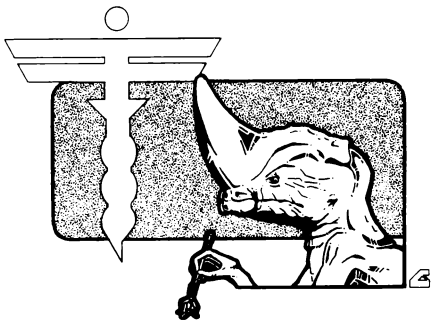


Human Medicine, Tech Level 9 to 12

MEDICAL DIGEST

—by Nancy Parker and Robert Parker

The great steps forward in medicine at early tech levels generally involve chemical and surgical interventions from outside the body to help it combat disease. By tech level 8, medical science typically starts to shift from these crude methods to more preventive medicine and a boosting of the body's own natural defenses. Therefore, from tech level 9 to 12, "helping the body help itself" becomes a key medical concept.

CORRECTING MALFUNCTIONS DIRECTLY

Many conditions can be alleviated by the direct correction of a malfunctioning immune system. In humans, for example, lupus, rheumatoid arthritis, pemphigus, some types of autism, allergies, and immune deficiency syndromes are all in this category.

The need for antihistamines and other allergy medications are often reduced or eliminated by desensitization injections, sometimes developed as early as tech level 7. Experimentation to locate the precise genes that mediate the immune response ordinarily begins in earnest at tech levels 8 and 9.

Intensive research into how genes affect the immune response leads to many useful medical discoveries. Learning that cancer cells have a unique biochemical tag is one such discovery. Such a solid understanding of cancer and its mechanisms is a common tech level 10 development.

From this, researchers can develop techniques to take a biopsy of cancerous tissue and engineer "fighter cells" specific to the patient and disease. These cells are introduced into the body, where they produce antibodies tailored to killing off the cancer in the patient.

This tech level 10 technique has far-reaching implications. It thus becomes possible to deliberately custom-engineer a "retrovirus infection" to replace any malfunctioning gene.

REGENERATION OF LOST BODY PARTS

Somewhat related to immune and genetic research is the search for techniques to enhance the regenerative abilities of the body. By tech level 9, nearly all cultures realize that every cell carries complete instructions for reproducing the body. And, on many worlds, the lower animals can often replace lost body parts as a matter of course.

The mystery is always this: how to coax the cells of the higher sentient life forms (such as humans) to begin regrowth. Usually by tech level 7, a culture learns that each different type of tissue has its own genetic "on-off switch" telling it when and how much to grow. Certainly, by the time a culture reaches tech level 9, many of these genetic switches have been marked. Once these genetic switches are identified, stimulating the regrowth using such a genetic switch naturally follows.

During the early stages of development in this field, results both amusing and tragic can sometimes occur. For example, on more than one world, experiments with laboratory animals have resulted in the growth of an entire extra body from the stump of an amputated limb. When this has occurred, it has been a first time event for the medical science of the world: laboratory produced Siamese twins.

With this technique of regeneration, for example, lost or broken teeth can be replaced—even in late adulthood. Amputated limbs can be regrown, though results at tech level 9 are not always reliable.

With further research, more "switches" are typically found and greater flexibility of the technique achieved. By tech level 13, related techniques allow the generation of replacement parts "in vitro" (a nutrient solution) from single cells taken from the patient's own body, thus enabling the selective cloning of replacement body parts.

Limb regeneration differs from the cloning of replacement parts in that *regeneration* takes place at the damaged location on the body, and consists of merely encouraging the body to regrow an entire part from the remains of the old.

ACCELERATION OF GROWTH AND HEALING

Another technique related to complex cell regeneration is the *acceleration* of the normal growth and cell replacement processes. Understanding growth rate has a tremendous payoff, for inherent in this technology is the foundation of true anti-aging treatments and anagathics. Few cultures realize this at first, as the initial uses of growth acceleration typically include the treatment of burns, radiation damage, anemia, and other such disorders.

Ironically, meat growers sometimes play a part in developing growth acceleration techniques. On many worlds, growth acceleration was first developed to produce more marketable meat in a shorter period of time, and thus to increase domestic herds and flocks quickly. This has been a major factor in staving off famine in several cases where the domestic animal population had been drastically reduced because of disease or natural disaster. Only a limited amount of this technique as used on animal life applies to plant life, but the research continues.

ANTI-VIRAL VACCINATION

Many spin-off discoveries come from the above fields of study. One of the most important is anti-viral vaccinations.

Most planets achieve some measure of ability to vaccinate for specific viruses around tech level 7 or 8. Usually the necessary breakthroughs to expand the field come by tech level 9, with broad spectrum anti-viral vaccinations coming at about tech level 10 or 11.

One drawback to anti-viral vaccines is that they sometimes trigger an adverse reaction in the body's immune system. Obviously, the higher the tech level and the understanding of the immune system, the less often this will happen, and even if it does, the easier it is to identify and counteract the reaction.

CATALYTIC BIOCHEMISTRY

In a different direction, research into catalytic biochemistry produces special clot solvents that can dissolve and decompose cholesterol plaques in the bloodstream. In cultures at tech level 9 and above, this has undoubtedly saved many lives and made many others more comfortable.

However, these medications must be used under the care of a skilled individual, as they occasionally cause a tendency to hemorrhage. Since they convert free cholesterol as well as plaques, they cause hormone depletion in the body's endocrine system for two to four days after being administered.

NERVE REFUSION

Generally, surgical techniques have improved to such a point that by tech level 11, practical refusion of damaged nerves in the central nervous system becomes possible. Occasional success with peripheral nerves around tech level 7 amounts to little more than creating a new node at the suture point and preventing degeneration of the once-severed axon.

However, repair of brain, brain stem, and spinal chord nerves requires actually regenerating or replacing of nerve cells; these normally stop dividing at age 1. Finding a way to turn on nerve cell growth is often the most highly acclaimed triumph of regeneration research. Of course, the replaced cells do not have the ingrained habit paths of the damaged originals, and the patient may have to relearn the simplest movements. Compared to life as a vegetable or confined to a gravchair, this is a trivial hurdle.

PROSTHETIC LIMBS

Another place where this nerve refusion has great impact is the field of prosthetic limbs. With the use of these surgical techniques, prosthetic limbs are interfaced directly with the organic nervous system, thus offering most of the strength and dexterity of the original limb. In some cases, the prosthetic limbs are tailored to a specific profession or are interchangeable. This gives the wearer even more flexibility than the original limb, all under the control of the central nervous system.

ARTIFICIAL SENSORY ORGANS

Closely related to prosthetic limbs is the ability to replace damaged or destroyed sensory organs (such as eyes) with artificial ones. Again, using surgical nerve refusion, these artificial sensory organs function nearly as well as the original with the added advantage of not being as easily damaged as the original.

If the sensory malfunction was congenital, the patient has to learn to interpret the new nerve signals. Thus, for example, if a human was blind from birth, it may take him a while to learn to "see".

ARTIFICIAL WOMBS

A great aid in decreasing the infant mortality rate common in low tech cultures is the invention of the artificial womb, typically at tech level 9.

An outgrowth of the heart-lung machine and artificial kidney machine technology of tech level 7, the womb allows premature infants of whatever size to be kept in a near natural prenatal environment until they are fully to term. The machine takes over all usual functions of the placenta, keeping the fetus in a dark, quiet, fluid environment similar to the natural womb.

From tech level 9 to 12, "helping the body help itself" becomes a key medical concept.

CRYOGENICS

One of the more important medical techniques developed at tech level 9 is the technique of cryogenic suspension, also called "low berth". It is used in a variety of ways for a variety of purposes, but all come down to a most basic medical need: the need to buy time.

Many of the more advanced ambulances and ambulance-bots carry cryogenic berths as standard equipment. If they find the trauma or illness beyond their ability and the patient is likely to die before reaching qualified personnel, they place the victim in cryogenic suspension. Many starships have cryogenic low berths installed as standard equipment, either as an emergency medical facility, or as a method of passenger transport.

Surgeons sometimes use cryogenic techniques to slow down bodily processes. This gives them more time to work and lessens the risk of harming the patient.

SPECIFIC GAMING APPLICATIONS

Detailed rules for fitting medicine into your own campaigns will be only touched upon here, in the first of many articles on medicine. In future issues, we will delve into many ways that you can liven up play sessions by paying closer attention to the health and well-being of characters.

For now, notice how medicine has (or has not) played a part in your campaign as you run it now. Remember that everyone as a matter of course would rather be healthy than unhealthy. This can be used as a powerful motivator for a game. Want the characters to avoid a certain area? Put a deadly disease there. Want the characters to travel to a certain location? Infect one of the characters with a disease, and require a trip to that location to retrieve a special cure. Get the idea?

NEXT ISSUE

With the ability to regrow the original limbs available, one may ask, why use prosthetics, even when they have advanced to the point that they have? Good question. Next issue, we examine this question as we begin a series of "Medical Digest" articles on prosthetics, bionics, and cyborgs.•

Traveller: The Next Generation

THE GAMING DIGEST

—by Joe D. Fugate Sr.

When Marc Miller approached us (Digest Group Publications, or DGP for short) in late 1986 about compiling and editing a brand new version of the **Traveller** rules for Game Designers' Workshop, we were thrilled. Here was a special opportunity for DGP, and for me in particular, since I've been an avid fan of **Traveller** from its early beginnings back in 1977.

I'm known as "Mr. Rules" here at DGP, and "tinkering" with rules is one of my favorite tasks. I've also played *a lot* of **Traveller** over the years, and I had a wish list of things I'd like to do to "tweak" the **Traveller** rules. Here was my big chance.

So I was nominated to be the lead editor on the first two books of the three book **MegaTraveller** set—the *Players' Manual* and the *Referee's Manual*— the two rule books. As lead editor, I had an awesome responsibility. It fell to me to do most of the integration and updating of the original **Traveller** rules—and to work closely with GDW and Marc Miller in the process.

This updating effort had two basic goals: first, integrate and combine the best of **Traveller's** first 10 years into a new, up-to-date rules set, and second, the new rules must be "upward compatible"—that is, the new rules must not invalidate any prior **Traveller** material unless the change was seen as a beneficial improvement. The end result must be unmistakably **Traveller**.

Now, a quarter of a million words later, **MegaTraveller** is out. What changes were made in the original rules, and why were they made? How do some of the new rules systems work? Let's take a look at these questions and their answers in this article.

ON WITH THE TASK

The single most significant enhancement to the **Traveller** rules was to incorporate the Universal Task Profile system (UTP) *throughout* the game: no part of the rules was to be untouched. So, we might ask, what's the big deal with the task system? Why was it so important that every rules system should be modified to accommodate it?

Adventure games in recent years have been moving toward more concrete definition of "micro-tasks" during an adventure. We at DGP saw such a need for **Traveller**, and pioneered the Universal Task System for **Traveller**. Marc Miller saw the need as well, and he jumped right on the idea of a task system when we first proposed it to him. Marc saw what a comprehensive task system could mean to the game even before we did, and he insisted we develop it further.

Incidentally, we have heard a couple of interesting theories about where the UTP system came from. One theory we've heard is that the UTP system has its roots in the **Twilight:2000** task system. Actually, we had never even looked at a copy of the **Twilight:2000** game until after the task system had been in existence for about a year. The second theory is that the **MegaTraveller** task system came from the **Traveller:2300** task system. Wrong again. The task system was originally invented for **Traveller** and was presented in the *Travellers' Digest* magazine more than a year before **2300** was released. We provided the task system to GDW for use in the **2300** game, but the system was originally invented for **Traveller**. This last error has appeared in print recently in several **MegaTraveller** reviews.

So what does a game-wide task system buy you? A game-wide task system provides a way to quickly codify three fundamental properties of any task:

- Indicate the level of difficulty;
- Specify the skills that apply;
- Estimate the duration of time needed.

The task system also provides a simple, consistent way for handling mishaps when they occur. And once something's broken or damaged, the task system even gives you guidelines for making repairs. The real power in these rules is that they apply *across the board.* No matter what you are trying to do, the same basic system is used to construct the task. Herb Petro (editor of the **Traveller** fanzine *Continuum*) said it best: "With the task system, mounds and mounds of custom rules disappear."

And that's really the point. Before the task system came about, every adventure had its own custom way of handling the key tasks to be accomplished. Each new adventure would devote much of its content to describing how the referee should handle the important tasks in the adventure. Much of the description involved abstracting reality into an array of special rules.

These were interesting reading to be sure, and sometimes very insightful to boot. But my experience has been that I would forget most of these custom rules by the night of the adventure session. There I would sit, frantically rereading the 5 pages of text about how to start an ATV in sub-zero weather. Meanwhile the players just sat, waiting for me to get my act together.

The task system changes all of that. The task format conveys as much information as possible in very little space. And the task definition is deliberately set off in the text by blank lines to make it highly visible.

The task system has been evolving and growing for nearly as long as DGP itself. We have used the *Travellers' Digest* as a proving ground for the system, and the feedback we've gotten has helped us make substantial improvements in the system along the way. It has also been a great help to have Marc Miller as a strong advocate of the task system since day one.

The most substantial improvements to the task system, in my opinion, came as we were finalizing it for **MegaTraveller**. I received some helpful discussion on the system's rough spots from Bill Connors, Bob Swarm, and Mike Mikesh at ORIGINS '87 in Baltimore.

One complaint was that handling failures using the failure table seemed awkward. We had experienced the same thing ourselves in our own playtests, although I had never felt that it was a "flaw" as such. It took others pointing it out to

me as the *least playable* part of the system to send me searching for a solution. It turned out the answer was right under my nose, and I didn't even realize what I had done (seems like I've heard *that* before...).

In the new **MegaTraveller** combat system, I had created variable combat results by evaluating the combat task roll itself. For example, if the task roll was 2 or more than what was required for success, then "exceptional" success had occurred. So, why not do the same thing for failure? If the task roll is at least 2 less than what is required for success, then exceptional failure has occurred, and you must check your determination in order to try the task again. On hazardous tasks, exceptional failure means a mishap has occurred. Simple, but not simplistic. Once you see what's going on with the rules, they're easy to remember because they make good sense.

The exceptional success/exceptional failure concept has a lot going for it. It eliminates the failure table, which greatly streamlines the handling of task failure. Now, with a *single* task roll you know if you succeeded at the task, and you also know how good you did. Look, ma, no hands!

Another gripe was with uncertain tasks. Because the player sees only his roll, when his roll fails, he can know for certain the task results are flawed, but when his roll succeeds, he can *never* be certain the task results are sound. Granted, this is often what an "uncertain" task is all about in the first place—but there are times when a player should know he can trust the results of an uncertain task when they are favorable.

How do we solve this disparity? Once again, exceptional success comes to the rescue. If a player achieves exceptional success on his roll, the referee may elect to tell him he has gotten the total truth. This can make the players appreciate their skills when they know exceptional success in the task has eliminated the uncertainty.

Working with **MegaTraveller** combat demonstrated to both Marc and me the need for a new category of task: the confrontation task. A confrontation task involves two "sides" working at counter-purposes. One side, designated the offender, is the one who is effectively "driving" the task: his DMs are pluses, pushing the task toward success. The opposing side, designated the defender, wants the task to fail: so his DMs are minuses, pulling the task toward failure. We created a new notation for confrontation tasks to allow offenders and defenders to have different DMs. Offender DMs are prefixed by "Off=", and defender DMs are prefixed by "Def=".

One less obvious aspect of a confrontation task has come to light in playtesting. Because a confrontation task has minus DMs where other tasks generally don't, all other things being equal, a confrontation task is more likely to fail. For example, a Routine task against an equal opponent becomes a task with few or no plus DMs, since your opponent's DMs cancels out your DMs. Be aware of this fact when setting task difficulty. Even a *Routine* task can make success difficult to achieve against a skilled opponent.

While the task system is simple to use, it has grown to have many options. At first glance, this makes it seem more complex than it really is. But take heart: once you've got the system down, you know most of the **MegaTraveller** rules!

Playtesting has proven this to be true. In fact, we find the new players catch on to the task system quicker than the old hands do. Once the players pick up on the concept, they quickly plead "give me a task" when they want to do most anything in an adventure.

A TASK EXAMPLE

Here's an example of how the dialogue typically proceeds in one of our playtest sessions here at DGP.

PLAYERS: We want to sneak past the guard who's in the entrance to the landing bay—what's the task?

Referee: Okay, that's going to be at least difficult, and probably formidable, although stealth and dexterity would help. Oh, yes, it's definitely hazardous—

PLAYERS: Uh, we'll try the more direct approach. We want to talk to the guard. What's that take?

Referee: Okay, make a task roll for the guard's reaction. The task is Routine, Liaison, Admin (confrontation, uncertain). (*The referee secretly rolls 1D-2 for the guard's total defensive DM, and gets a 1.)*

PLAYERS: I have liaison-1 and admin-2, for a +3. (*Rolls dice).* I got a 6, plus my skill gives 9. *(The referee subtracts the guard's defensive modifier of 1 from the roll, for a true result of success only: a neutral reaction.)*

Referee: This guard looks like an easy mark to you. *(Referee rolls his half of the task giving an 8, plus the player's skill of +3, minus the guard's skill of -1, giving 10, for total truth. He now begins speaking as the guard, using a stern tone of voice.)* "ID Please."

NOTHING LIKE A GOOD FIGHT

The **MegaTraveller** combat system has two fundamental goals: it should be fast, and it should allow anything to attack anything.

MegaTraveller combat grew out of a version of combat we've used for years in our playtests here at DGP. We just call it our "fast" combat system. The ability for anything to attack anything came out of the drive to integrate vehicle design, small craft design, and starship design, which in turn came from *Striker.*

One of the secrets to making combat fast is to boil it down to the only things that matter in a combat round: "Did I get him?" and "Is he out of the action yet?" While combat systems that deal with precise hit locations may be more realistic, they bog down the game when it should be moving at its quickest pace.

Another approach we used that I feel is perhaps even more important to maintaining speed in combat is minimal dice rolling and table lookups. If each combat action involves 5 table lookups and 6 dice rolls, is it any wonder combat sessions are slow? Add the fact that the referee often has the burden of running dozens of NPCs all by himself, and combat can be *extremely* slow if the combat system involves lots of table references and dice rolls.

The **MegaTraveller** combat system involves one table lookup at the beginning of the combat session (getting weapon and armor stats), and only one dice roll per attempted hit during combat. How's that for minimal overhead? I guarantee you it makes combat move right along—more as it should.

Another concept that players seem to love is the ability to

take their turn whenever they want by interrupting. It sure makes them pay attention during combat!

A FIRE COMBAT "TO HIT" EXAMPLE

So let's take a look at a simple example of fire combat, using the 15 meter outdoor scale. This combat example involves an animal, which leads to a related item in the **MegaTraveller** errata (you can get the complete errata from GDW by sending them a SASE):

Page 68, left column, Interrupts (correction and clarification): The sentence should read: Unintelligent animals never perform an *intelligent* interrupt. An animal that by nature leaps at its prey will interrupt by jumping at a man, even though that man is fully protected by combat armor. An animal that by nature flees at loud noises will interrupt to run away from a defenseless human who is yelling at the top of his lungs.

A character is firing a laser pistol at an animal 3 squares away (45 meters in the 15m scale). The animal is running at speed 2 (toward the character) and weighs about 25kg. The character has a dexterity of 7 and a laser weapon skill of 3.

The range is medium (1 to 3 squares), so consulting the difficulty profile for a handgun at medium range, we find the difficulty level to be Difficult.

The character gets a DM of 3 for his laser weapon skill and a DM of 1 for his dexterity. The animal is running at speed 2, which at medium range provides a defensive DM of -1 (movement DM of 2 is halved because of medium range). The total DMs on the "to hit" task equal +3: +3(skill) +1(dex) -1(target movement). If the character rolls 8+ on 2D, he will hit the fast moving animal with his laser pistol.

Once the animal reaches short range (same square), the net effect of the task difficulty is to drop one level to Routine. Now, however, the animal gets its full speed DM of -2 since it has reached short range. This brings the character's DM total to +2 (3 + 1 - 2). If the character rolls 5+ on 2D he will hit the animal.

If the animal reaches close range (same square as per the mutual rule and the animal interrupts to lunge at the character), the to hit task difficulty drops another level to Simple. The animal still gets its full speed DM of -2, keeping the character's DM total at +2. If the character rolls anything but 2 he will hit the (apparently fearless) animal with his laser pistol.

All other things being equal, note that you reevaluate just one DM (for movement) and the basic difficulty level each combat round. Both depend on the same factor: a change in the range to the target.

FISTICUFFS

The **MegaTraveller** rules list two tasks to be performed for each hand-to-hand combat attack. A less realistic but more streamlined approach is to combine the two tasks into one confrontation task.

The **MegaTraveller** errata lists the following task as a suggested optional replacement for the two hand-to-hand tasks:

Page 69, right column, hand-to-hand combat tasks (suggestion): If you prefer, you can combine the two hand-to-hand combat tasks into this single task:

To hit another unit with a hand-to-hand attack:
Routine, Off=Wpn skill, Str; Def=Wpn skill, Wpn Def (confrontation, hazardous)

Referee: If the attacker is unskilled, increase the difficulty of this task by one level; if the defender is unskilled, decrease the difficulty of this task by one level.

The defender may use his weapon (whatever weapon he currently has) for defense. Note that the defender may later conduct a hand-to-hand attack with his weapon if he has not yet taken his turn. The defender may attempt to preempt the attack by interrupting the attacker (note: use Dex in place of movement speed as the DM when interrupting a hand-to-hand attack in this manner). The defender may not attempt to interrupt anyone other than the attacker.

Failure means the defender blocked or otherwise avoided the attack.

Also, the errata has a clarification on hand-to-hand interrupts:

Page 70, left column, hand-to-hand interrupts (clarification): A unit undergoing a hand-to-hand attack *can* try to interrupt the attacker; in this case, use the interrupting unit's Dex as the DM in place of movement speed. In effect, two units locked in hand-to-hand combat may interrupt each other, but no other units.

A HAND-TO-HAND COMBAT EXAMPLE

Given the suggestions in the errata, let's look at a simple hand-to-hand combat example.

A barbarian with a sword attacks an unarmed Scout. The barbarian has a Str of A, Dex of 8, sword-4 skill, has jack armor (armor value (1)), and has a hits value of 4/5. The unarmed Scout has a Str of 9, Dex of A, brawling-3 skill, is wearing a TL15 vacc suit (without the helmet and gloves, armor value 3), and has a hits value of 3/5.

The Scout declares he wants to interrupt and run for it. He must use a hand-to-hand interrupt task, which is a variation on the normal interrupt task:

To interrupt another unit's turn:
Routine, Dex (safe)

The Scout rolls 2D and gets a 4, plus a Dex DM of 2 giving a 6: he failed his interrupt. Here comes the barbarian with the sword.

Let's look at that new hand-to-hand combat task again.

To hit another unit with a hand-to-hand attack:
Routine, Off=Wpn skill, Str; Def=Wpn skill, Wpn Def (confrontation)

Starting with the offender's DMs (the barbarian): Wpn skill(sword)=4, Str=2; total Offensive DM=6.

Next the defender's DMs (the Scout): Wpn skill(hands)=3, Wpn Def(hands)=1; total Defensive DM=4.

Total net DM is +2 on the task. The referee specifies that the barbarian is going for a pinpoint hit on the Scout's exposed head. The ref rolls the barbarian's attack and gets

7, with a DM+2, giving 9: an exceptional success hit! The pinpoint hit succeeded.

Next we evaluate the penetration. On a pinpoint hit the target armor is halved (exposed area), giving the Scout an exposed armor value of 1.5. The barbarian's sword has a penetration of 4, giving a *high penetration* hit. The barbarian's sword does its full 3 points of damage. But we're still not done. On page 71 of the *Player's Manual*, left column, a 2+ exceptional success hit allows multiplying the damage points by 2. So the barbarian does a whopping 6 points of damage, leaving the Scout's final hits value at 0/2. Scratch one Scout.

LET'S TALK IT OVER

While discussing concepts for **MegaTraveller** with Marc Miller and J. Andrew Keith at ORIGINS '87, an intriguing observation surfaced. All roleplaying games had detailed rules for resolving disagreements with violence. What about detailed rules for resolving disagreements without resorting to violence?

So the **MegaTraveller** interpersonal task rules were born. There are now five interpersonal tasks: most any character-to-character interaction can be classified as being one of the five types.

With the new interpersonal tasks came a new reaction table. The original reaction table sometimes seemed too random: you would ask a clerk what time it was and he'd pull out his FGMP-15 and growl, "Time to leave, that's what time it is!"

When you boil an NPC's reaction down to its essence, the question becomes a simple one: does his reaction further my goals or doesn't it? Put another way: does the NPC cooperate, or doesn't he? An over-simplification perhaps, but I believe less ambiguity is better for the already overburdened referee.

There is now an initial reaction, followed by subsequent reactions. Initial reactions center around neutral and are never extreme. Based on how the player proceeds with the NPC, the reactions tend to gravitate toward one extreme or the other.

"Actively cooperative" is the reaction needed in order to get the really choice bits from an NPC, such as the location of the local Psionic Institute.

You can use two basic approaches when using the interpersonal tasks. One method is to roll the interpersonal tasks as the player explains what he's saying or how he's acting toward the NPC. The other method is to roll the initial reaction, and roleplay it from there. At DGP we are big into playing the character's role and the challenge of staying in character even if it "hurts". We tend to use the latter method (see the task example involving the guard, above).

As an aside, this brings up a point I think isn't stressed enough: don't be a slave to the rules. The rules are meant to be a guide and an inspiration, not a ball and chain. I'm a firm believer in the most important rule of all: keep the adventure moving at a lively pace, even if it means ignoring the rulebook from time to time. If everyone is having a great time and the results seem reasonable, why worry that the ATV really had only a 72% chance of crossing the vacuum plain instead of an 84% chance?

KEEPING THINGS UNDER CONTROL

The craft design rules in the *Referee's Manual* incorporate a new design concept: control points. Control points indicate how complex your craft is to operate, and thus how many controls you need to keep things working right.

The control points requirement of a system is based on its price, which is not a bad indicator of how intricate and delicate a system is. Some may argue this point, but my response is: "Okay, what do *you* suggest?" Power, volume, and weight definitely don't work.

Note also that complexity, and thus control point requirements, *goes up* with tech level, since tech level is used as a *multiplier* in the control point formula. Just look at a tech level 5 biplane cockpit and compare it with today's tech level 8 Cessna cockpit. I'd say the complexity (and thus the control point requirement) has gone up considerably.

Crew requirements are also based on the control point needs of a craft. Some may argue that as tech level increases, crew requirements *go down*. What they are observing is the increased effects of automation: a subtle, but important difference. Higher tech systems tend to do more, which increases its control need. Consider:

"It is almost axiomatic that the more a system can do, the more human interaction is required to make it do it. One might even say that the easiest system to use is the one that does nothing."

—Frank J. Romano, Executive Editor of Electronic Printing & Publishing Magazine.

The increased demands of more sophisticated systems can be met in one of two ways: add more people, or add more automation. High-tech societies tend to add more automation, instead of people, which has the effect of decreasing the manpower needed. However, it is possible for the control point requirements of a craft to be so great that unless a computer is installed, the craft literally could not carry the number of crew needed! Without automation, how many men would be needed on the Saturn V moon rocket?

TOO MANY GUNNERS SPOIL THE SHOT

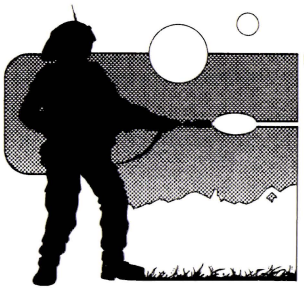
Once we finished the new **MegaTraveller** craft design system, we spent a lot of time designing spaceships. However, most of those spaceships were below a displacement of 2,000 tons (27,000 kiloliters). The new gunnery crew formula works great for determining the number of gunners needed.

But lately we've been designing many larger ships, and the number of gunners on the large ships seems a bit excessive compared to the figure from *High Guard*. So here's an addition to the gunnery formula in **MegaTraveller** (included in the errata from GDW):

Page 82, step 7, Gunners (addition): If Cg computed above exceeds 50, recompute Cg instead as:

Cg = 50 + (Cg/50) (round fractions up).

That about wraps it up for this issue. Next issue we'll take a look at the changes taking place in the Imperium after Strephon's death. We will focus on how to set up and play an adventure in the divided Imperium era. Included will be some very useful comments from Mr. **Traveller** himself, Marc Miller. See you then.•



The Traveller Arsenal

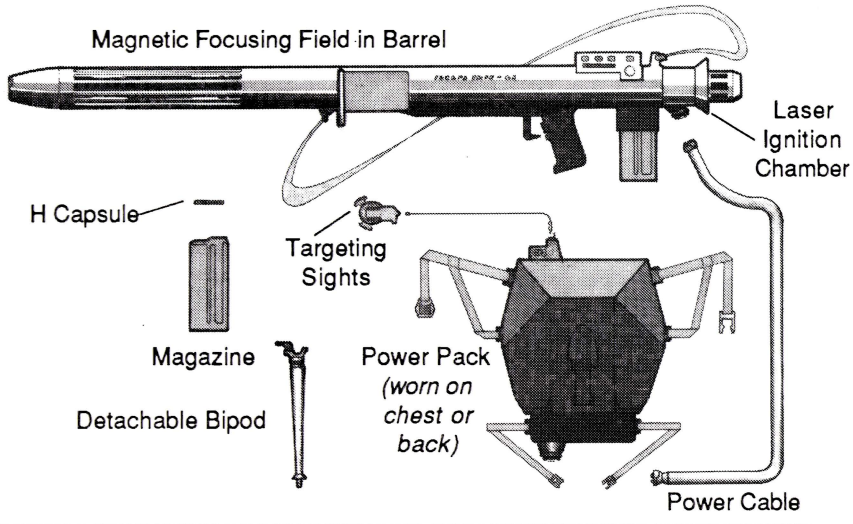
ILLUSTRATED TRAVELLER HARDWARE

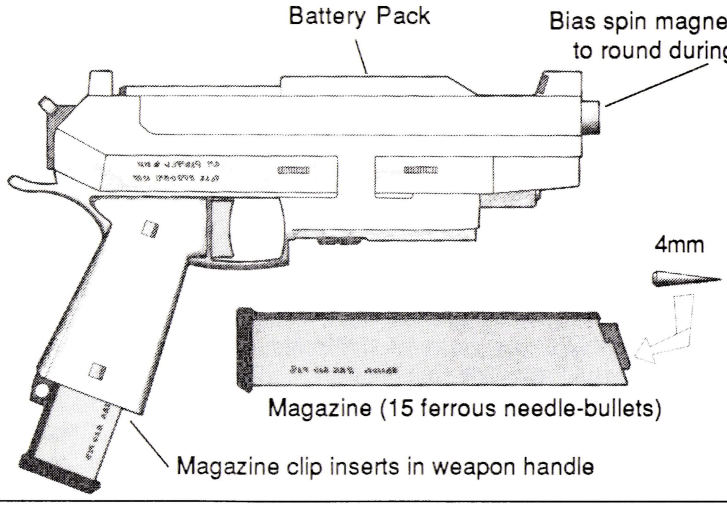
—by Karl Martin

PGMP-12
(Plasma Gun, Man Portable)

The first of the man-portable energy weapons to become available, the PGMP-12 is a typical tech level 12 development. The gun fires a 2cm plasma bolt, generated in a plasma ignition chamber from small hydrogen fuel "H capsules" in the special magazine. A pressurizing rig (not shown) is available for refilling the H capsules from a standard hydrogen fuel supply.

When fired, the PGMP-12 has a considerable recoil, and emits a thunderous roar.




Battery Pack
Bias spin magnetically imparted to round during barrel flight.
4mm
Magazine (15 ferrous needle-bullets)
Magazine clip inserts in weapon handle

Gauss Pistol

A smaller, more portable version of the electromagnetic gauss rifle (see below), the gauss pistol is first available at tech level 13. Unlike the guass rifle, the gauss pistol is *not* gyrostabilized.

A gauss pistol magazine does not include an integral battery, and thus differs from the rifle magazine. A separate battery pack inserts into the left side of the weapon. The battery pack holds enough power to fire two full clips (30 rounds in total).

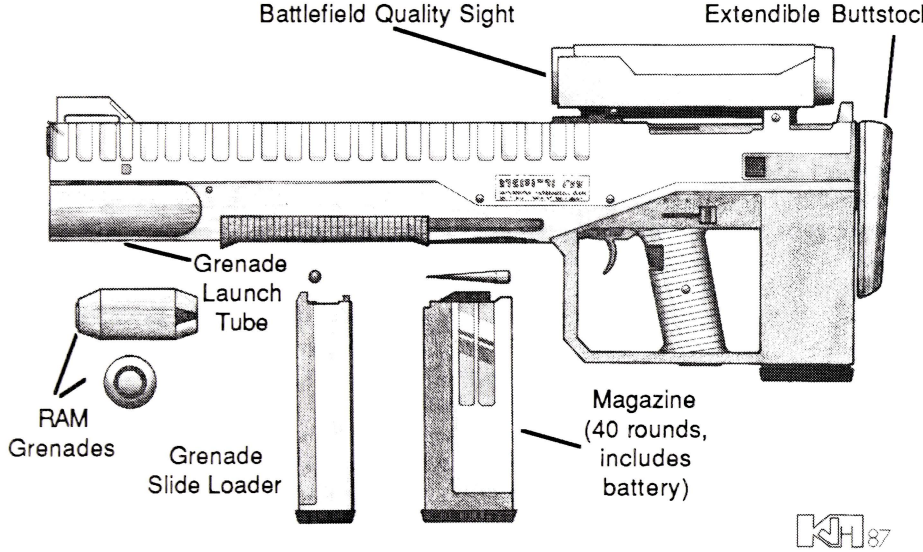
The gauss pistol is absolutely silent when fired.

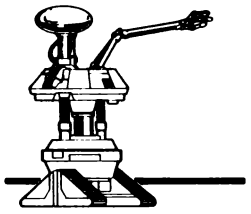
Gauss Rifle

An electromagnetic rifle, firing a ferrous 4mm needle-bullet by magnetically propelling it down the barrel. The gauss rifle is a common tech level 12 development of the slug thrower.

The gauss rifle is gyrostabilized, and includes an integral RAM grenade launcher. The slide loader holds 3 grenades: 1 ready, 2 in reserve.

The gauss rifle is absolutely silent when fired.





Information Processing

TRAVELLER TECH BRIEFS

—by James A. Holden

Traditionally, Traveller player characters have used the computer for only two things: starship control and information storage. Computers are well suited to these tasks, but the capability of computers to process information—not just store it—has long been neglected in gaming. This area of computer operations has great potential use for both player characters and non-player characters.

Even on tech level 8 Terra, computers were used for analysis and projections in many fields:

- Military strategists used computer simulations to test the value of different battle plans;
- Commercial interests used computers to analyze market trends, project profits, and analyze different marketing strategies;
- Engineers used computer simulations to test the feasibility and durability of mechanical and architectural designs.

COMPUTER ANALYSIS

Computer analysis of data provides a good opportunity for the referee to give players information that would be difficult for them to figure out for themselves. The players still feel involved, but may act using the results of a meaningful analysis.

Without the ability to do a computer analysis, the players may be forced to waste months of gaming time while their characters correlate massive quantities of raw data by hand.

Analysis Example: The medical bureau of a starport is faced with a number of radiation poisoning cases. Old civil archives indicate the waste products of a fission reactor were buried in the area, but they do not give the exact location.

An enterprising bureau worker gathers information on the places where the victims lived, worked, and travelled. He keys the data into a computer and writes a program to find the locations that *all* the victims visited frequently. He gets a list of 11 possible sites.

The medical worker visits each of the 11 sites with a radiation counter. In short order, he finds the location of the waste material that is leaking radiation into the environment. Computer analysis made it necessary to visit only a few sites instead of hundreds.

Below is a series of tasks which can be used to duplicate such computer analysis. These tasks serve to demonstrate the "average" use of computer analysis; circumstances may alter the times or difficulties.

To determine an efficient way of analyzing raw data:
Routine, (Applicable Skill), Int, 30 min (uncertain)
Referee: "Applicable skill" refers to the skill with the greatest relation to the data being analyzed; for example, trader skill might be used to extrapolate market trends on the basis of raw economic data. (continued, next column...)

Total Truth, Some Truth, or No Truth indicates the validity of the analysis and the quality of the information given to the players. (This, of course, assumes the program works successfully.)

To write the analysis program:
Routine, Computer, Edu, 45 min
Referee: Superficial Mishaps do not impede actual program operation; they are "cosmetic"flaws in the program. Minor or Major Mishaps must be diagnosed and corrected.

To diagnose a program fault:
Routine, Computer, Int, 15 min (uncertain)
Referee: On Some Truth make correction of the fault one level more difficult. Corrections based on No Truth diagnoses have no effect.

To correct a program fault:
(Difficulty), Computer, Edu, (Time)
Referee: If the fault is Superficial, a task is Simple and time increment is 10 minutes. If Minor, task is Routine, time increment is 20 minutes. If Major, task is Difficult and time increment is 30 minutes.

If the program is written and runs without Mishap, the program's output reflects the validity of analysis as determined above.

COMPUTER SIMULATIONS

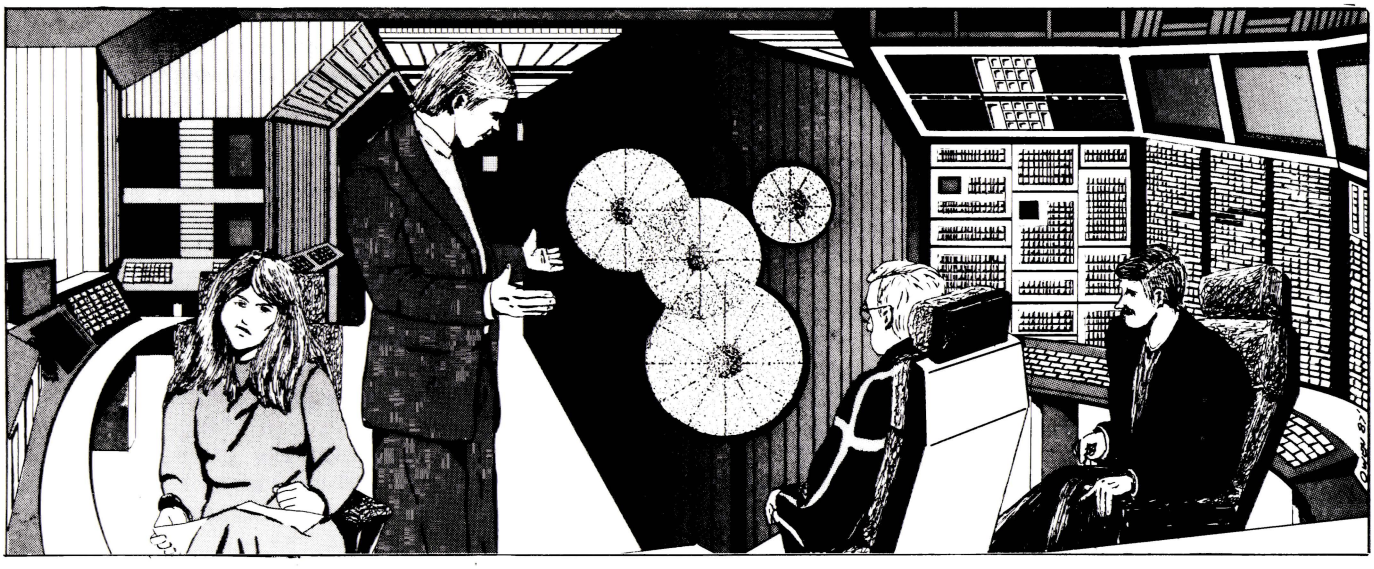
Computer simulations (also sometimes called "computer models") are an effective means of increasing a character's skills in certain specific situations.

Unlike the general computer augmentation task in **MegaTraveller**, a successful computer simulation provides a significant temporary skill increase. A successful simulation raises the skill level of the person using the simulation's results by the skill level of the person who created the simulation.

For example, a military leader with information on his opponent's forces might build a computer simulation to evaluate different strategies. A successful analysis of the simulation's results allows the military leader to add his own tactics skill level to his original tactics skill level, thereby enabling him to *double* his tactics skill level for the battle in question.

A simulation analysis program is only valid under the specific circumstances it is designed to cover. When a character produces a simulation program, he must *explicitly state in a single sentence* what circumstances it covers. Broad general-purpose simulation programs belong in the realm of true artificial intelligence, and players will rarely encounter super-simulation programs below tech level 17 in **Traveller**.

Simulation Example: A biologist with biology-2 creates a model projecting the growth of a certain plant species under varying environmental conditions. She analyzes the results and presents them to another biologist with biology-3.



For any task dealing with the growth of that particular plant species under the conditions specified in the simulation, the second biologist adds the first biologist's skill level to his own, effectively giving him biology-5. If the biologist were analyzing the growth of a different species of plant, the simulation would be of no value for the task.

Below are a series of tasks for performing a computer simulation.

To decide what factors affect the computer model:
Difficult, (Applicable Skill), Int, 2 hrs (uncertain)
Referee: "Applicable skill" refers to the skill with the greatest relation to the data being analyzed; for example, trader skill might be used to select which market trends have an effect on offworld demand for certain products.

If desired, have the player state what factors he thinks apply to the situation and evaluate them as success or failure in place of the referee's roll. Regardless of the method used, a result of Total Truth makes the simulation analysis task roll below one level easier; a result of No Truth makes it one level harder.

To write the simulation program:
Routine, Computer, Edu, 90 min
Referee: A Superficial Mishap represents a flaw that does not impede program function, but increases the time duration on the analysis task from 1 min to 1 hour. Minor and Major mishaps must be corrected for the program to run.

Diagnosis and correction tasks are the same as those given above for computer analysis.

To analyze the simulation's results:
Routine, (Applicable Skill), Int, 1 min (uncertain)
Referee: "Applicable skill" refers to the skill with the greatest relation to the simulation being analyzed; for example, trader skill might be used to analyze the results of a market trends simulation.

A result of Total Truth adds the full skill level of the simulation's creator to the skill level of the person using the results.

(continued, next column...)

A result of Some Truth adds half of the creator's skill level (round down).

No Truth means nothing is added to the user's skill level.

Unless the player rolled exceptional success, do not tell the player how much he can increase his skill level until after he commits to the task which *uses* his increased skill level.

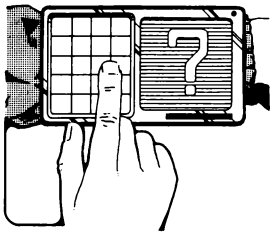
PROGRAMMING METHODS

Since the topics above involve extensive programming and debugging, a brief look at the various means of programming is in order.

The earliest computers appear at tech level 5, and must be programmed through actual changes in wiring. Computers at tech level 6 are generally programmed using binary instructions. At tech levels 7 through 9, specific technical programming languages play a significant part in computer operations. Once voice transcription becomes commonplace at tech level 10, technical languages are largely replaced by written or spoken commands given in plain Galanglic. Technical languages still exist at tech levels 10 and beyond, but only for applications which require great precision or maximum performance.

Characters have a knowledge of a number of technical computer languages equal to their computer skill level. The specific computer languages the character knows depend in a large measure on his background, career, and homeworld tech code. For example, merchants rarely have knowledge of programming languages used only for military applications.

Characters forced to work on tech level 7, 8, or 9 computers from a world with a tech code of average stellar or more must increase the difficulty of all programming and debugging tasks by one level. An instruction manual for the language or the assistance of a knowledgeable programmer voids this penalty. In any event, all task times are doubled when working with an unfamiliar language.•



Traveller Q&A

OFFICIAL ANSWERS TO YOUR QUESTIONS

Traveller Q&A provides answers to questions from readers on various aspects of **Traveller**, **MegaTraveller**, and **2300**. If you have a question you would like to have answered, send it to: Digest Group Publications, Q&A, 8979 Mandan Ct., Boise, ID 83709. We will publish the best of these questions and answers in this column. (*Editor's Note: We especially need **2300** questions. If you have any questions on **2300**, by all means, send them in.*)

Every single answer published in this column is seen and approved by Marc W. Miller, the leading designer of **Traveller** and **2300**. We want to stress to our readers that anything appearing in **Traveller Q&A** is *official* unless explicitly stated to be a variant.

Why is the 'ton' used to measure both displacement (volume) and physical weight? For example, the G-Carrier discussed in *Grand Census* displaces less than 9 'tons', yet weighs 72 'tons' when empty. Is starship performance affected by cargos of excessive weights, even though they fit in the ship? —J. N.

MegaTraveller craft design clarifies the definition of the various types of tons on page 57 of the *Referee's Manual.* I agree with you that the terms can be confusing—which is why I tried to get away from using "tons" for volume, and using kiloliters instead for vehicle and spacecraft design. Our preference here at DGP is to clearly specify when we are talking about a displacement ton. For example: a Scout/Courier has a size of 100 displacement tons. To recap, here's the definitions given in **MegaTraveller**:

Tons Displacement: A widespread method of specifying a space vessel's size is to give its volume in terms of the amount of liquid hydrogen it would displace (as if it were immersed in a vast sea of liquid hydrogen). Tons displacement is not to be confused with the craft's weight in metric tons (that is, its actual mass). A starship that *displaces* 100 tons may actually *weigh* over 1,000 metric tons. A displacement ton is a measure of volume rather than weight; one displacement ton equals 13.5 kiloliters of volume.

Volume: A craft's volume is the amount of space it takes up. Volume is measured in kiloliters—a kiloliter equals one cubic meter. Thus a cube that is one meter on a side has a volume of one kiloliter. A kiloliter contains 1,000 liters; 13.5 kiloliters equals one ton of displacement.

Weight: A craft's weight is measured in metric tons. One metric ton equals 1,000 kilograms.

To answer your question about excessive cargo weight affecting starship performance, in **MegaTraveller**, loaded weight is computed using the mass of a cargo hold totally filled with water (i.e., 1 metric ton per kiloliter). This, clearly, is more massive than a typical cargo load.

Clarifying the distinction between displacement and mass has several interesting effects on the **MegaTraveller** craft design system. **MegaTraveller** ship performance (agility) is based on true ship mass, not displacement, so ship performance is realistically affected by changes in the ship's mass. I think this makes starship design in **MegaTraveller** both more fun and more challenging.

For example, if you want to armor your ship's hull to the hilt, you'll pay the price. Your ship's mass is going to skyrocket, and your ship's agility will suffer. The ship's displacement remains unaffected.—*Joe D. Fugate Sr.*

Can energy accumulated in the jump drive capacitors from a black globe generator in combat be used exclusively to power a jump, or must jump fuel be used in any case? — J. K.

As stated in both *High Guard* and the **MegaTraveller** *Referee's Manual,* a starship's jump drive capacitors can be used to divert or "bleed off" the energy absorbed by a black globe when the screen is hit in combat. The rules, however, are unclear on this point, largely because of the word "capacitor". Because the jump drive capacitors are being used, many have just assumed the energy could be used to charge the hull jump net, and thus send the ship into jump. Unfortunately, that does not work. The jump drive must still be used to charge the capacitors and power the jump.

The energy from the black globe is of a low grade, while the energy generated by the jump drive is of a much higher grade. The jump drive capacitors are able to absorb the black globe energy, but they cannot use it to effectively power the jump net in the ship's hull. The low grade energy allowed to leave the ship after the black globe is off exits the ship via the jump drive hull net as ordinary heat energy. It is useless for propelling the ship into jumpspace. (Incidentally, note why the black globe generator has to be off to allow the heat energy to leave. Were the energy allowed to leave while the globe was on, the heat build-up inside the black globe sphere would melt the ship's hull.)

The statement in the rules that says "If the ship absorbs enough energy to make a jump, and is supplied with sufficient fuel, it may jump" is misleading. The jump drive must still be used as normal to enter jumpspace. Whether or not a ship has a black globe really has nothing to do with going into jump.—*Marc W. Miller*

If you have bay weapons of a particular type, does that preclude turret weapons of that type? Do hardpoints cost or weigh anything?— J. K.

In original **Traveller**, you could not mix bay and turret weapons on the same ship. With the new **MegaTraveller** rules, you can. The new Universal Craft Profile is much more flexible in that regard.

Hardpoints do not cost anything per se. A hardpoint is a design designation when the craft is on the drawing board. The mounting hardware and the "weapon" itself that go into the hardpoint are where the cost and weight come in.—*Joe D. Fugate Sr.*

How do robot brains differ from starship computers? —J. K.

Robot brains tend to be more specialized and less deterministic (i.e., more synaptic). Robot brains are also optimized for size, since they must often fit in a very tiny space.

Starship computers must monitor, self-test, diagnose, and control literally millions of complex components. Because of this, the more predictable (and cheaper) deterministic computers are used. Some synaptic processing exists in starship computers at the higher tech levels (13+), but the synaptic results are always cross-checked by the deterministic portion.—*Joe D. Fugate Sr.*

It appears that the quantity of jump fuel needed for jumps higher than jump-1 has decreased in MegaTraveller. At jump-6 only 35% of the ship is needed for jump fuel, as opposed to 60% of the ship in the old system. Was this intentional? — R. D.

Yes, this was quite intentional. In making *Striker* fuel consumption fit with starship fuel consumption in the new system, it became apparent that a *Striker* fusion power plant consumed a *lot* more fuel than was indicated in the starship design systems for a power plant. So to compensate, jump drive fuel requirements were reduced. However, the result is that the volume that must be devoted to fuel tankage as a whole was only slightly greater on the average. The net effect is that little change in total fuel requirements has been made. Here are some comparisons of ship fuel requirements:

	Disp	*M*	*J*	*Old Fuel*	*New Fuel*	*Variance*
Scout	100	2	2	40 tons	38 tons	-2%
Seeker	100	2	2	30 tons	37 tons	+7%
Free Trader	200	1	1	30 tons	46 tons	+8%
Far Trader	200	1	2	30 tons	50 tons	+10%
Fat Trader	400	1	1	50 tons	79 tons	+7%
Yacht	200	1	1	50 tons	40 tons	-5%
Patrol	440	4	3	160 tons	187 tons	+6%
Merc Cruiser	800	3	3	318 tons	303 tons	-2%
Lab Ship	400	1	2	90 tons	85 tons	-1%
Safari Ship	200	1	2	60 tons	57 tons	-2%
Close Esc	330	5	5	181 tons	185 tons	+1%
					Average:	+3%

Notes: M=Maneuver, J=Jump. Variance is expressed as a percentage of total ship displacement, old to new.—*Joe D. Fugate Sr.*

According to my calculations, the Starships in the MegaTraveller *Imperial Encyclopedia* were all designed with a basic life-support volume and weight figure of 0.005. This is contrary to the figure of 0.050 as shown on the Environmental Controls table on page 81 of the *Referee's Manual*. Is this so? — J. F.

You are right! Good catch: that one slipped by us. The correct volume and weight figure for basic life-support is the 0.005 figure. Thanks for pointing this out. We'll make sure this gets added to the latest edition of the **MegaTraveller** errata, available by SASE from GDW.—*Joe D. Fugate Sr.*

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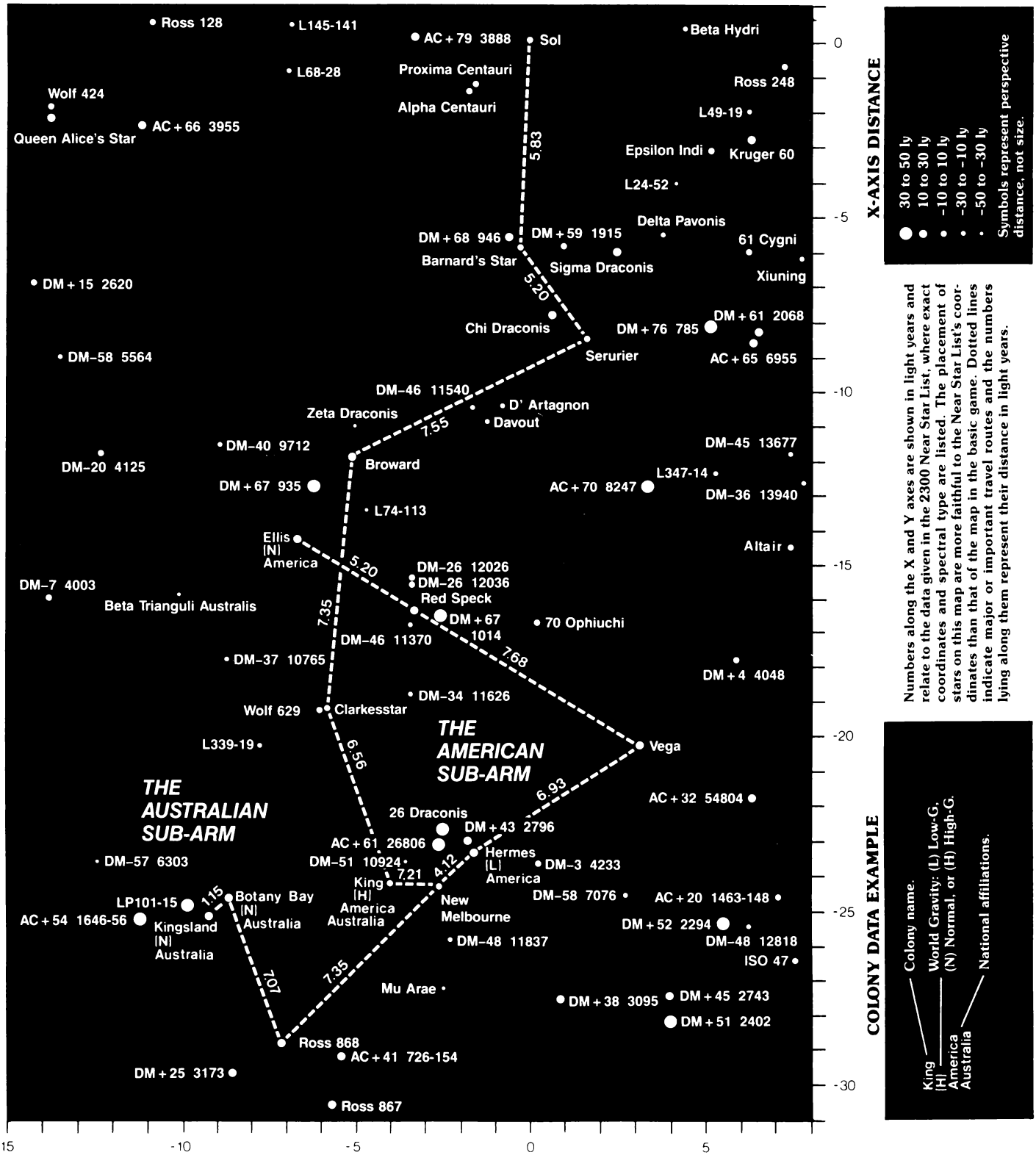
The American Arm



An Overview of the American Arm

—by Rob Caswell, William W. Connors, and Timothy B. Brown

Mankind's expansion to the stars was facilitated by the timely discovery of the stutterwarp drive, a mechanism that propels a ship at faster-than-light velocities by allowing it to perform a great number of micro-warps per second. In most cases, a vessel outfitted with stutterwarp can travel 7.7 light-years before it builds up a critical amount of energy which must be discharged in a gravity well. By virtue of the fact that many stars are separated by a figure in excess of this 7.7 light-year distance, the physics of the universe has acted to shape the interstellar transportation routes used by stutterwarp starships. The routes break into three distinct "arms" of explored space: the American Arm, the Chinese Arm, and the French Arm.

The six colonies (on five worlds) and six outposts of the American Arm have been settled almost exclusively by the nations of America and Australia. Filling a corridor of space stretching some 32 light-years distant from Earth in the general direction of the constellation Lyra, the arm shares the same path as the Chinese Arm on the initial stretch, from Earth to the outposts at Broward. It is not until one reaches Clarkestar that the worlds of the American Arm become mutually exclusive to those of the Chinese Arm. As one travels along the arm, it divides itself into two sub-arms; each dominated exclusively by one nation or the other.

What follows is a short summary of each of the systems which comprise the American Arm. (More detailed information on the colony worlds of the arm can be found in GDW's *Colonial Atlas*.)

CLARKESSTAR: This system is the site of the only significant installation in the American Arm which is not administered by the Americans or Australians. A small asteroidal chunk is the site of DeVilbiss Station: an astronomical research facility run by the British government. The station maintains a permanent staff of about 1,500 persons and operates a dish in cooperation with the ISBIP (Inter-System Baseline Interferometry Program) survey.

During expansion into the arm, some of the station's facilities were leased by the American government to support their probe missions into the new territory.

KING: This oversized "terrestrial" planet is the first of the colony worlds encountered as one travels along the arm. With a diameter of just over 30,000 km, King lies in the first orbit of the K-class star DM+2 3312. The planet's great mass gives it a crushing surface gravity of 3.08 gees. The planet is also quite tectonically active, enough so that, although the atmosphere contains a breathable mix of oxygen and nitrogen, it is tainted with fatal sulfur compouds. In addition, the world's considerable axial tilt creates an unpredictable and often violent climate. Regardless of the seemingly inhospitable nature of the world, it is home to both the American colony of New Columbia and the Australian colony of Huntaland.

Under ordinary circumstances, neither nation would have considered putting the effort and financial support into solving the problems of establishing a colony in such a harsh environment, but King proved to bear one of the richest deposits of tantalum yet discovered by man. Today it serves as the primary tantalum supply for both nations and produces a small, salable surplus besides. America's place at the cutting edge of warship design is due, in part, to King's reliable tantalum supply; as is Trilon's success in the field of starship development.

The habitation of King is made possible via two products of genetic engineering: DNAMs (DNA modifiers) which enhance selected body systems to better deal with the abusive characteristics of the planet's surface, and AFSs (Atmospheric Filter Symbiota); an organism designed to live in the human lung and filter out the deadly sulfur compounds.

Orbiting about King is its 4,500 km diameter moon, Abernathy. Extensive American and Australian space force bases are placed here in order to safe-guard the nations' tantalum interests. Lying further out in the system, the gas giant of Borlaug is home to a diversity of "air borne" Jovian life forms. An orbital research station (BISJX) has been set up in order to study the giant's ecology in greater detail.

NEW MELBOURNE: The tiny desert world of New Melbourne serves as a kind of trade nexus for commodities travelling between the sub-arms and in and out of the arm proper. The jointly sponsored base on the planet's surface houses a large array of warehouses, corporate and otherwise. The entire surface facility is either domed or subterranean, since New Melbourne has only a trace CO^2 atmosphere.

HERMES: The yellow-orange subgiant component of the Mu Herculis trinary system serves as the primary of the first colony along the American Sub-Arm. Hermes is one of the coldest planets yet colonized by man and most of the planet's population of two million is concentrated

AMERICAN ARM CHRONOLOGY

2172: *America constructs outpost in Broward system and announces commitment to explore in the direction of what will become the American Arm.*

2187: *Foundation of British outpost in the Clarkesstar system.*

2189: *American Space Force (AFS) and the Royal Australian Space Navy (RASN) lease British facilities at Clarkesstar for exploration support.*

2190: *First flyby of DM+2 3312 (King's system) by ASF/RASN probe missions.*

2192: *ASF/RASN set up outpost on the surface of King. First human DNAMs (DNA modifiers) created by American and Canadian researchers.*

2194: *Establishment of America's colony of New Columbia on King.*

2196: *Australians construct colony of Huntsland on King and outpost on New Melbourne.*

2199: *Americans build facilities on New Melbourne.*

2201: *Construction begins on Australia's outpost/support facilities.*

2202: *ASF survey vessel Carolina Dream lost on preliminary mission to the Mu Herculis system. Follow-up mission finds no trace of the ship but discovers the garden world of Hermes.*

2212: *Australians establish a colony on Cook Island in Botany Bay's southern hemisphere.*

2214: *First Australian colony on Botany Bay fails.*

2215: *Start of American agricultural colony on Hermes. Colonists of King initiate the Tantalum Strike of 2215 to protest forced immigration of criminals to work King's mines.*

2217: *American government folds to demands of King's colonists. Tantalum Strike ends. Glacier world of Kingsland (Zeta Herculis A-4) colonized by Australia.*

2220: *ASF probes perform first surveys of AC+48 1595-4 (Ellis's system) and find a garden world with a deteriorating ecology.*

2223: *Australia makes second attempt to put a colony on Botany Bay. Darwin Island is chosen as the site.*

2224: *Work begins on ASF's Vega Far Station 5.*

2225: *ASF Far Station 6 in Red Speck system becomes fully operational.*

2229: *America, with assistance from the Alberta Farmers' Cooperative, begins colony on Ellis and starts programs to halt the planet's ecological decline.*

2241: *Discovery of ecosystem in Borlaug's (DM+3 3312-3) upper atmosphere.*

in a narrow temperate band circling the equator.

The indigenous life of Hermes has its base in dextro-amino acids and is, therefore, indigestable by humans. Some of the population's nutritional requirements are imported from off-world, but the environment suitably supports terrestrial crops enough to meet many of the colony's food demands. Indeed, Hermes began as an agricultural colony, but shifted its focus to industrial pursuits once the more distant world of Ellis proved its greater ability to meet the agricultural demands of the arm.

Recent years have seen a certain amount of political tension rising between the government of Hermes and the powers of the extensive industrial sector. Hermes is currently a U.S. dependency, but the government and some factions within the population have been pushing for Hermes to follow in Ellis' footsteps by petitioning for statehood. This has met with all but violent opposition from the colony's industry, as such legislation could bring on stricter control over industrial growth and practices on Hermes. It is uncertain where the escalating tensions will lead.

VEGA: The American Space Force base at Vega Far Station 5 serves as a coordination center for exploration activities in the Beta Aquilae cluster. The station, built on a large asteroid inclined 40° to the massive star's protoplanetary disk, is also used as a containment and quarantine facility for returning exploration crews and planetary samples.

RED SPECK: The small American way station in this system, Far Station 6, was built on a small moon orbitting one of an unusual pair of binary gas giants in the outer system. The facility is staffed on a rotating basis and engages in study of the unusual binary planetary system.

ELLIS: The pride of America's colonial efforts, Ellis serves as the breadbasket for most of the worlds in the American Arm. It is a 12,850 km diameter world, the closest of a family of three planets in orbit about the red dwarf star AC+48 1595 89. Ellis's planetary radiation belts are unusually strong. As a result, it is hazardous for ships not build to withstand high radiation environments to undertake any manner of orbital activities. Most incoming vessels dock at the system's main port at Boise, a large asteroid in the trailing trojan point of the second world. From here, specially shielded shuttles run regular service to Ellis's surface.

When Ellis was first surveyed in 2220, it was found to be a garden world in decline, with large, growing stretches of desert choking off a scattered family of land-locked seas. A remarkable reclamation program, spearheaded by the Alberta Farmer's Cooperative, halted and slowly reversed the downhill slide of the world's ecosystem. Not long after the first settlements were established, the colony began to produce a surplus of food.

Today, the population of Ellis is clustered about the perimeters of many of the planet's seas. Irrigation networks spread out like a web from these pockets of civilization, nurturing the growing farmlands adjacent. There is still much desert area on the planet's surface, so many towns are protected by giant artificial wind breaks to protect them from the tremendous winds generated in the vast, flat, barren zones. Most towns are linked into a planetwide microwave communication network.

Thus far, Ellis is the only extraterrestrial colony which has been granted statehood by the United States. This was done in 2276, during America's quinticentennial celebration.

The moon of Carlton, orbiting the system's second world, is used as a training base for the USMC. Here the Corps gains practice in operations undertaken in low-gravity, non-terrestrial environments.

ROSS 863: Though the extensive halo of asteroids and cometary debris here was once the focal point of support operations for the Australian colonial operations, its facilities have since dwindled to nearly nil. The Ross 863 outpost is an asteroidal nugget; its activities center primarily around the operation of the ISPIB dish nestled in its side. There is still an operational refinery insystem, reducing cometary materials to usable forms. Recently, OMS-6, the Richard Trevithick, has taken up station in the system and is engaged in activities under the Trilon Corporation.

BOTANY BAY: The third of nine planets circling the K7 star of DM+33 2777, Botany Bay is the site of the first solely Australian colonial effort. The planet's surface is unusually smooth, exhibiting maximum surface elevation extremes of only a couple of kilometers. Ninety percent of the world's surface is covered by a shallow, muddy ocean. Land masses are restricted to a scattering of fairly small islands, which display wide tidal flats as the land gradually creeps to elevations above the mean sea level.

All the islands yet surveyed on Botany Bay are surrounded by a broad tidal ecology. It is primarily composed of spreading foliage which is as much at home in water as on land. This thick foliage continues to fill the waters for miles off shore, teeming with a diversity of life. Travelling inward, toward higher ground, the tidal "interface" ecology gradually gives way to veldt, composed of an array of the native "looping" plants. These plants reproduce by arching their hardy

trunks back into the ground, which makes them a nuisance for travel by foot.

One of the most interesting aspects of Botany Bay's ecology is its wheeled animals. Secreted, organic wheels are the standard mode of locomotion for indigenous animals in the veldt. This gives the creatures an appearance somewhat like an organic unicycle, and makes them capable of considerable speeds on open ground. Visual recordings of these creatures in motion have proven a profitable sales item in the core.

Australia's first colonial effort was concentrated on an island in the southern hemisphere, but resulted in an embarrassing failure due to poor pre-colonial planning. Two decades later, the Australians launched another colonial effort on Botany Bay; this time focusing on Darwin Island in the northern hemisphere. With better planning and a focus on industrial pursuits, rather than the agricultural goals of the first colony, the Darwin colony prospered.

Today, the colony's major city is the port of New Cairns, which sports a cleared harbor area (built up by the Royal Australian Engineering Corps) and a spaceplane port. Light to medium industry serves as the colony's primary financial base. Civilization has just begun to spread to some of Darwin's neighboring islands. Only now are surveys being made of the rest of the planet's ecology and geography. Expedition ships regularly cruise out of New Cairn's harbor, bound for the many unexplored islands.

KINGSLAND: Like a green, brown, and white striped marble, Kingsland's three major environment types show with crystal clarity through the world's virtually cloudless atmosphere. Glaciers, covering roughly a sixth of the planet's surface, extend down from the poles until the rugged tundra takes over. The tundra eventually gives way to the more temperate equatorial regions. Free-standing water exists in limited quantities in this zone, with most of the surface water being tied up by the glaciers.

Zeta Herculis A-IV was named Kingsland by the Australians who made it their home. Life on Kingsland is typified by a rural existance, with the only population concentration of note being the town of Hogan. The tundra and equatorial regions are dotted by plantations called "sixgoat stations" which raise and nourish sixgoats, a native herbivore, for meat and skins. Sixgoats have been described as looking like "big, shaggy, land-shrimp".

Much civilized land in the equatorial zone has been put to agricultural use. The farmers of these homesteads often barter with the nearby sixgoat stations. Cross country travel is usually achieved by means of "rock-buggies"; large-wheeled vehicles with very high ground clearance. Few vehicles in human space take as much abuse as a Kingslander rock-buggy.

Many of the planet's human inhabitants have made their homes in the trunks of dead "flat trees". These enormous plants have a symbiot which inhabits the trunk, but dies when the rest of the plant dies, leaving a spacious cavity in the trunk which, with some minor carpentry, makes for a convenient home.

A low level terraforming operation is in effect in the glacial regions. By genetically increasing the productivity of a native plant named the "bunyip's hat", it is hoped that more of the glacier's frozen water can be liberated for use by the rest of the ecosystem.•

__2245:__ Ellis begins producing agricultural surplus. Beginning of Hermes's depression.

__2250:__ Beginning of Botany Bay's industrial boom.

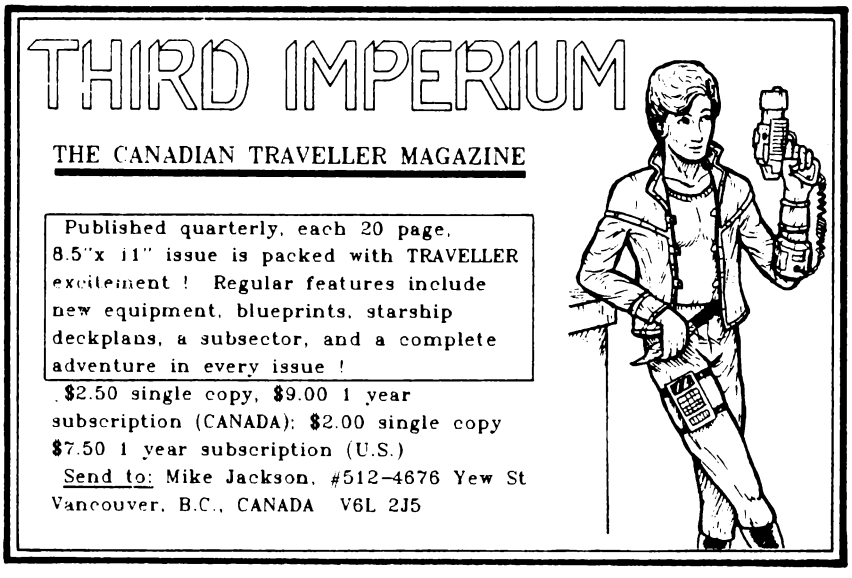
__2257:__ The Mule Corporation rolls out its first vehicle, marking the beginning of Hermes's industrial revolution.

__2261:__ America celebrates Shepard Day and 300 years of space travel.

__2276:__ American Quinticentennial. American government grants statehood to Ellis, making it the forty-eighth state.

__2299:__ Discovery of brown dwarf ISO 417 by ISBIP survey.

__2300:__ Opening of Acey-Acey bridge to Beta Aquilae cluster. The present.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Exploration: American Style

—by David McCoy and Tom Peters

"There is no compromise in exploration. Individuals and societies must either explore, or stagnate. There is simply no third option." — William Stanton, Ellis, July 2298

Exploration of totally new solar systems has been impossible for the last 40 years ... a frustrating development for the peoples of America and Australia, two nations with deep exploratory traditions.

HISTORY

Despite early exploration and colonization efforts, from 2260 to 2300, no new colonies, outposts, or even remote bases were established in the American Arm. The reason for this sudden lack of enterprise is simple. Starships are strictly limited in the distance they may travel between discharges of their stutterwarp drives. By 2260, all known accessible solar systems within the arm had been reached. While extensive exploration remains to be done on the established territories within the arm, particularly in outpost systems, exploration of totally new solar systems has been impossible for the last 40 years.

This was, to say the least, a frustrating development for the peoples of America and Australia, two nations with deep exploratory traditions. Had circumstances been the same in the French and Chinese Arms, perhaps the limitations of local interstellar geometry would not have been as chafing. But such was not the case. The French and Chinese Arms open up onto a myriad of unexplored solar systems. The American Arm alone was a close grouping.

Many made the point that, functionally, this fact made little difference, since the resources available within the American Arm have barely been recognized, much less tapped. A number of outpost planets within the Arm have been mapped to a resolution of only 10 meters. The equatorial regions of Ellis, an established American colony, have yet to be mapped in exacting detail. Even on colonies as well explored as Mu Herculis, ignorance greatly outweighs knowledge. But the urge for exploration is not merely practical. Some people just don't like limits.

The presumed closed nature of the American Arm might or might not have made a difference in the longer run. Two quite independent developments, one in 2996, the other in 2300, have rendered the issue obsolete. The American Arm is no longer closed.

BROWN DWARFS

In 2261, the AAEC (Australian-American Exploration Council) embarked on the Inter-System Baseline Interferometry Program, an incredible experiment in wide-scale telescopy. Created in 2117 as part of a series of exploratory and colonial cooperation agreements, the AAEC has as its principal duties the management and dissemination of the growing database on colonial esploration, the establishment of uniform exploration procedures in accordance with the Melbourne Accords, and the identification of the most promising targets for concentrated exploration activities.

In accordance with this last responsibility, the Council in 2165 directed the construction of a number of radio and optical observatories thoughout the American Arm. The data collected from these facilities made it possible to simulate a telescope with an effective diameter the length of the American Arm. The observatories were constructed in cooperation with a number of academic institutions, and much of their operational duty cycle was dedicated to basic scientific research. The AAEC, however, was concentrating its efforts in a single direction—the search for brown dwarfs.

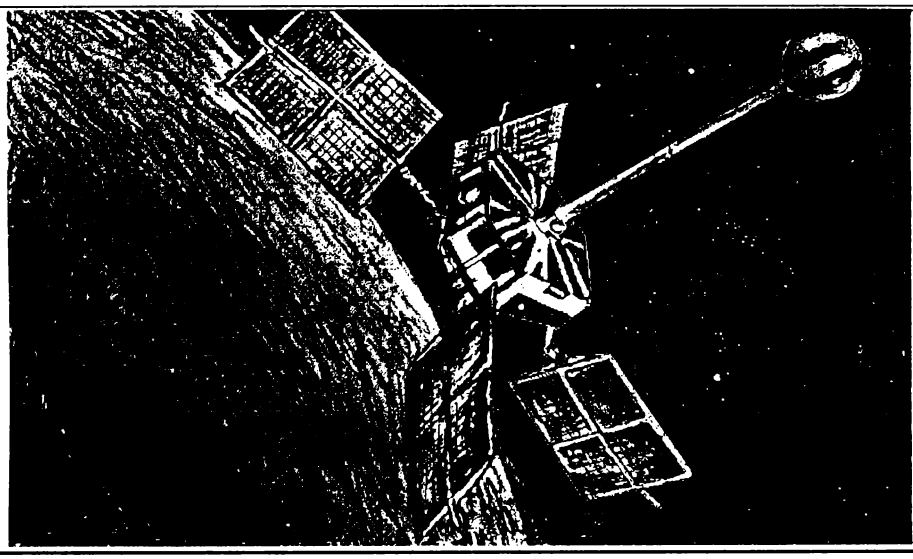
Present astronomical theory holds that brown dwarfs may be the most common stellar type. Despite this fact, relatively few have been discovered. They emit very little electromagnetic radiation, are relatively unmassive, have no appreciable Oort clouds, and in general refuse to do anything which would make them easier for astronomers to find. Brown dwarfs are massive enough, though, to allow for stutterwarp discharge, provided they are approached closely enough.

The AAEC was searching for any of these objects that might serve as a bridge to other systems just out of reach. Over the 145 year period since the construction of the first interferometry facilities, they found several brown dwarfs, not to mention a number of other interesting objects. None were in useful positions. The twelfth interferometry observatory was brought on line in December of 2299 at Ross 165. In January, 2300 the network found a good one.

Unglamorously labeled ISO 417, the brown dwarf lies at standard coordinates 7.6, -27.2, 4.7. It is an M1 star of absolute magnitude 47.7. ISO 417 can be reached from AC +20 1463-148, two circuits off the colony at Vega. The AAEC wasted no time in acting. In March of 2300, the exploration cruiser Cook was sent to AC +20 1463-148. Cook had two major goals.

First, Cook launched three stutterwarp probes to ISO 417, programmed to gather preliminary information about the star and any system which it held.

Second, Cook began a more careful survey of AC +20 1463-148. The system had been



previously examined, but had offered nothing worthy of careful scrutiny. The AAEC would require more careful surveys in order to determine the site of a future interface base in the system. It had been decided that until facilities could be constructed, Mu Herculis (Hermes) and Vega Far Station 5 would be used as operational facilities for exploration of the cluster that lies beyond ISO 417.

The return of all three probes within two weeks of launch was a good sign. The star had no planetary bodies, but a small attendant sphere of dust and gas was dectected.

By July of 2300, Cook's examination of the AC +20 1463-148 system had resolved sufficiently to answer the questions required for outpost site selection, and the ship returned to Mu Herculis. The data brought back by the Cook led the AAEC operations panel directing the project to decide the ecologies of AC +20 1463-148's worlds did not offer sufficient advantages to justify the orbital interface costs involved in using them as sites for the future outpost. A 23 kilometer long, 12 kilometer wide asteroid dubbed Horizon was selected instead.

In October, work began on isolation and maintenance facilities on Horizon. The future base was named Acey-Acey by the ASF and Royal Navy personnel who were constructing it, referring to its role in connecting the systems at AC +20 1463-148 and AC +2 2155-242. In the months that followed, the name evolved into the official designation for the outpost (possibly due to the inconvenience of referring to the station as AC +20 1463-148 TR-L4 1072 AAEC MIRO 1). In February of 2301, three ISV-5s will be ready for the Beta Aquilae research program, to leave for ISO 417 shortly thereafter.

The presumed closed nature of the American Arm might or might not have made a difference in the longer run. Two quite independent developments, one in 2996, the other in 2300, have rendered the issue obsolete. The American Arm is no longer closed.

STUTTERWARP TUGS

The second development which opened up the American Arm began with a succesful test in 2296. In May of that year, William Stanton piloted the coupled ships *Ajax* and *Odysseus* out of orbital facilities from Earth. *Odysseus's* engines were off-line and built up no discharge as *Ajax* powered both vehicles to a point 3.85 light-years out. *Odysseus's* engines were then brought on line and calibrated. At this point, the ships separated from each other, and *Ajax* returned to Sol system and discharged. *Odysseus* proceeded another 6.88 light-years to Epsilon Eridani. The total distance travelled by *Odysseus* was 10.73 light-years. Stanton had designed a vehicle combination capable of breaking the 7.7 light-year barrier.

While other designs had been proposed which were capable of doing this (the exploratory vehicle *Bayern* for example), Stanton's design did not require the use of disposable stutterwarp engines. For Stanton, and the consortium of backers which had provided the money for the construction of his design, this was not a subtle point.

Stanton and his associates were interested not merely in exploration for scientific purposes; they wanted to open another frontier for colonization. In order to do this, they must not only be able to reach new systems, they had to be able to provide for economical transport between those new worlds and existing colonies. Disposable engines were not capable of providing this; Stanton's combination was. Using a tug at each end of a circuit, a total distance of 11.55 light-years could be travelled. While costs were higher than conventional stutterwarp travel, they were low enough to provide for economic viability of a colonization effort.

In November 2296, Stanton and his associates approached Trilon, a major shipbuilding

The total distance travelled by Odysseus *was 10.73 light-years. Stanton had designed a vehicle combination capable of breaking the 7.7 light-year barrier.*

corporation, with the stutterwarp tug design. After operational trials in December of that year, Trilon purchased exclusive manufacturing rights to the tug design and to the modified on-line off-line engines which made its use possible. While the final negotiated terms of the Trilon contract are not known, it is certainly known that Stanton became a very wealthy man. Several of Stanton's backers collected their percentages and moved on to other endeavors. Most, however, joined with him in establishing the Pioneer Society.

The contract with Trilon provided for the Pioneer Society to maintain ownership of the prototype tug vehicle. To this, Pioneer added a reconditioned heavy cargo vessel, a Trilon-designed exploration cruiser, and two VTOL-capable interface vehicles. Facilities were established in Ellis's system on an abandoned mining facility near Boise. Stanton and his society made heavy use of surplus exploratory equipment which the AAEC and other exploratory bodies had been trying to sell for some time. They also used the database which the AAEC had been developing in order to identify promising avenues of exploration.

When Stanton publicly announced his intentions to begin private exploratory efforts off Ellis, he encountered significant resistance from AAEC offices. The council felt that exploration was dangerous work, best left to professionals. Stanton countered that the AAEC was more than welcome to join him in his efforts, that he was operating within the guidelines established by the AAEC, and that he did not intend to cease his activities. A thorough review of the proposed Pioneer Society exploration followed, at the end of which the AAEC grudgingly turned its public domain information over to the Society. Thus, the Pioneer Society sprang immediately into operation and heavy debt. Gaining funds from a number of sources, it began exploratory efforts of the newly opened systems beyond Ellis.

Trilon, with access to the stutterwarp tug technology, also began an exploratory effort based from Mu Herculis. Trilon completed their own version of the stutterwarp tug in September 2299 and began their efforts with two ISV-5s. While Trilon is reported to be building two more tugs for their own use in this endeavor, they have been relatively secretive about their future plans.

"Interstellar exploration is simple—just know exactly what to expect before going." — Brian Davis, Prometheus Returns, *King, February 2215*

INITIAL EXPLORATION PROCEDURES

Telescopes are cheaper to build and to operate than starships. They are also much safer. Thus, the first step in any interstellar exploration is astronomical research. Telescopes can show what kind of elements are in system, how likely it is that planets have formed, whether organic life is a possibility, and in general, whether or not one would want to risk one's neck investigating further. Astronomical research serves as a guide for designing an effective mission. If a star is a blue giant with heavy flare activity, leave the botanists behind. If the star is a white dwarf, bring along geologists. If the star is a blue dwarf, don't go at all.

Astrophysical observations of the type which are useful to explorers are practiced on an ongoing basis by academic and other institutions engaged in basic astronomical and cosmological research. The AAEC also conducts a large program. This information is placed in the public domain by its authors, and is readily accessible through these institutions at a negligible charge.

Exploration of new systems also requires navigational information. Star positions are normally determined by measuring the star's Doppler shift, but Doppler shift position fixes are not accurate enough to provide for efficient interstellar travel. Precise position fixes are determined by observational triangulation from a number of observatories located in different systems. The AAEC exploration program out of Acey-Acey uses its own observatory network to acquire this data. Trilon and the Pioneer Society have been getting theirs in exchange for contributions to academic institutions operating astronomy programs, such as Chandler University.

Once a number of systems have been determined to offer promising potential for exploration, a mission profile is prepared. In the first phases of exploration, a vessel will visit several systems before returning to home port. When the targeted systems are previously unvisited, the mission profile will include plans for general system survey within the context of what resources are expected to be found. In later phases of exploration, mission profiles may include planetfall operations, remote facility resupply, sattelite and probe retrieval, personnel tranfer, and so on.

Based on the mission profile, an optimal vehicle is selected, (assuming there is more than one to choose from), crew is chosen, and the vessel is loaded with the appropriate scientific apparatus and supplies. While interstellar travel has certainly become more commonplace over the two centuries preceding 2300, exploration is far from routine. Send-off ceremonies and royal treatment for exploration crews in the days prior to departure are testaments to the understanding that whenever people are engaged in exploration, some will not return.

As the departing vessel gets underway, it will train forward telescopes on the destination star. A ship using stutterwarp engines basically travels up the light stream emitted from that star, and during the journey, a time compressed record of its activity can be recorded. In the case of a

star six light-years distant, this amounts to a time lapse study of the star for six years. This initial information can be very useful for recording short term fluctuations in the star's intensity which might rule the system out for later colonization, or which might even require exploration of the system to be aborted. Spacecraft are quite vulnerable to the hard radiation emitted by flare stars, and a physical exploration of systems with such stars at their centers is not only pointless, but also quite dangerous.

Upon reaching .25 light-years from the target system, standard procedure calls for the vessel to come to full stop. At this point the primary ecliptic of the system is determined and initial maps are made for in-system navigation. A vessel will usually hang here in space for several days while observations are made and a flight plan for exploration of the system is drawn up. Exploratory vessels enter unexplored systems off the ecliptic, allowing them to maximize observations as they continue inward and giving them the greatest flexibility in course selection.

If an Oort cloud exists, the vessel will also stop again at the boundary of the cloud. Oort clouds are spheres of cometary material which surround most systems considerably outside the orbits of any planets. Crew members will often "stretch their legs", exiting the vehicle to collect snow ball or larger sized chunks found floating in this region.

These fragments will offer the first real contact with the new system. Sample corings of this material can reveal vital information on the initial composition of the planetary system; samples can also confirm the long term stability of the system's primary star. Concentric spheres of deposited material will contain a record of the star's active output reaching back to the time of the system's formation. Oort cloud material often contains organic molecules, the presence of which increases the likelihood of life having formed somewhere in the system. Indeed, a number of samples have been retrieved containing active microorganisms, and on two occasions, macroorganisms. Regardless of whether such organisms are found, Oort material is classified as a potential biohazard, and P-5 isolation procedures are mandated in the handling of Oort samples.

The ship will start its exploration of the actual system in its center. A close approach of the primary star will provide the ship with Newtonian momentum useful in the later planetary orbit phase of the operation. The exacting solar astronomy made possible by this close flyby also insures that the star holds no surprises for any future colonists. Spectroanalysis of the star gives more precise information on elements to be found within the system, and alerts the exploration team to watch for these materials later.

If probes are to be used to aid exploration of the system, they will generally be discharged just prior to or just after periastron. Stutterwarp probes will be able to reach their targets more efficiently if they are launched prior to encountering the star's strong gravity flux. Impulse driven probes, which are incidentally about one-fourth of the price of stutterwarp varieties, will benefit from the momentum acquired by the vehicle after close approach. Generally, if a system seems to offer considerable promise based on the data acqired so far, impulse probes will be dispatched and left in the system to be recovered on a later visit.

Depending on the positions of the planets within their orbits, the ship will generally explore the most promising worlds in a long spiral flight path reaching out from the center of the system. Naturally most attention will be directed in the habitable zone. As the first world is encountered, the ship enters orbit around it. Unless strong radiation belts dictate otherwise, the first orbits are polar. Polar orbits allow the exploration vehicle to begin mapping of the planet's surface.

Techniques used in mapping will vary considerably, dependent both upon the clarity of the atmosphere and the sensing capabilities of the ship. Smaller terrestrial planets with little atmospheric obscuration can be mapped in the visible spectrum within a few days. Mapping larger worlds with synthetic aperature radar, allowing the detection of subsurface features, can take months. Optical mapping to a resolution of 1 km^2 is considered quite adequate for initial examinations.

Since 2255, it has been standard procedure for vessels entering orbits around previously unvisited worlds to scale the radio band listening for any signs of technical civilizations on the planet. All three exploratory efforts within the American Arm have announced their intentions to comply with this tradition, despite the low probability of receiving any such transmissions.

As mapping operations proceed in orbit, spectroanalysis of the atmosphere is conducted, and a brainstorming session of sorts begins. Computer analysis is applied to the incoming cartographic data. Programs have been designed to look for geological features indicative of resources beneath the surface. Color analysis is used to look for foliage or other signs of life. Every effort is made by the research team to catch up with the flood of information so far collected. If any features have been found of interest on the planet, higher resolution maps of the area in question will be made.

Exploration is far from routine. Send-off ceremonies and royal treatment are testaments to the understanding that whenever people are engaged in exploration, some will not return.

If no aspect of the planet's geology, climate, or observable biosphere indicate that further research is called for, the ship transits on to the next target world. If it seems there may be some reason for further study, however, sattelites will be launched while in polar orbit to continue long term observations of the planet.

If the planet has a significant atmosphere, the ship will now shift to an equatorial orbit and launch atmospheric probes. These probes may be designed to test for basic biologic activity, sniff for particular elements, or merely track upper atmospheric weather. Landing probes may be dropped to provide addtional information. Many of these will be designed to store data over a period of months and transmit it when a ship returns to the world. Once initial data returns have been confirmed from these probes, the exploration vehicle moves on. Standard procedure is not for landings to be attempted on the first exploratory pass of a planet.

If the system contains an asteroid belt, it will invariably be visited. Belts have proved valuable sources of raw materials. Most exploration ships carry lasers for remote vaporization and spectroanalysis of belt fragments. Even if lasers are used, results will generally be verified with actual samples gathered from the belt. Even if the belt does not seem suitable for long term exploitation, it can often serve as a temporary source of materials if a remote facility is later established in-system.

Once all targets in system slated for first-pass exploration have been examined, the exploration vessel collects any stutterwarp probes, and departs (impulse probes are usually left behind). When all systems on the ship's itinerary have been visited, the vessel returns to home port and data reduction and analysis continues, in preparation for the second phase of exploration.

REFEREE INFORMATION

First, Trilon's explorations are, as we mentioned, rather secretive. They will remain that way. Make up anything you like; we won't ever contradict you. Trilon is an American company with international/intercolonial holdings and their actions and motivations should reflect this, but other than that you have free license.

The Pioneer Society is interested in opening up a new frontier. Stanton takes strong personal interest in the society's exploration and chooses personnel for the missions himself. He is more impressed with overall ability than credentials, and PCs with various backgrounds could well wangle their way onto an expedition. The Society gets its operating funds from a consortium of six major firms interested in exploiting the resources of the new frontier, philantropic contributions, initial capital from the stutterwarp tug sale, membership fees, video sales, and contributions from the Aphrodite Foundation.

The Pioneer Society runs on a shoestring, and favors any action which will raise or save money. Society members (membership is Lv100 per year) can purchase tickets for Lv25,000 to go along with an expeditionary vessel. The Society sends out an exploratory expedition every six months, the average mission lasting about two months. The AAEC program is modeled after modern government exploration and information management projects. There is a close relationship between the AAEC and the militaries of America and Australia. Civilian scientists and military, survey, and scouting characters are most likely to be involved in initial exploration. There are a number of pressures on the AAEC to make a significant find soon. The program costs a lot of money, and the taxpayers would like to see a return. The AAEC has two vehicles operating in its Beta Aquilae exploration area. They send them out three times a year, with an average mission duration of six weeks.

Two stutterwarp tugs have been sold by Trilon to the American and Australian militaries.

COMING NEXT ISSUE

The second part of this article will cover the basic information on the worlds being explored by the AAEC and the Pioneer Society, landing and longer term exploration procedures and strategies, technical information on remote exploration facilities, and specific adventuring opportunities presented by exploration efforts.•

Task: *To reassemble an offline/online stutterwarp drive: Difficult. Ship Drive Engineering, Electronic/2 or Mechanical /2. 3 hours.*

Task: *To calibrate a reassembled offline/online stutterwarp drive (uncertain): Difficult. Ship Drive Engineering. 6 minutes.*

Referee: Success at this task allows the reassembled offline/online stutterwarp drive to be successfully engaged. Note that ship drive engineering skill is the only skill that may be applied to this task. Multiple tries are recommended to insure the drive is ready for operation. If the player's current try is SOME TRUTH, implement a 2D mishap when the drive is engaged.

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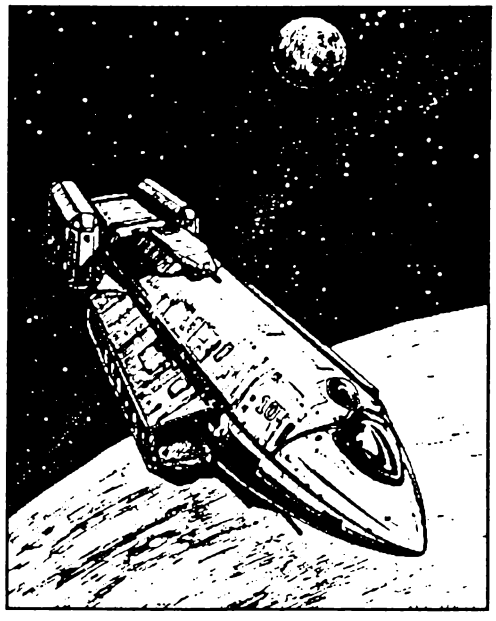

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MEGATRAVELLER

Science-Fiction Adventure in the Shattered Imperium

The vast interstellar Imperium has ruled its 11,000 worlds for more than a thousand years, straining at its limits to guard its borders and keep the peace within them. Until now, the Imperial government has succeeded. But now the emperor has been assassinated, and rival forces are competing for the throne. Powerful forces are at work tearing the empire apart.

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The Referee's Manual: This second book covers the essential elements of universe creation and manipulation, including task resolution, starship and vehicle design, starship combat, world and system generation, and trade and commerce rules.

The Imperial Encyclopedia: Supporting background material for the Imperium and the ongoing war is given in this volume, including library data, maps, world data, equipment lists, word generation for major languages, and the forms and charts necessary to play MegaTraveller.

These books will be available separately for $10 each. The boxed set will be available for Christmas and will cost $30.

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